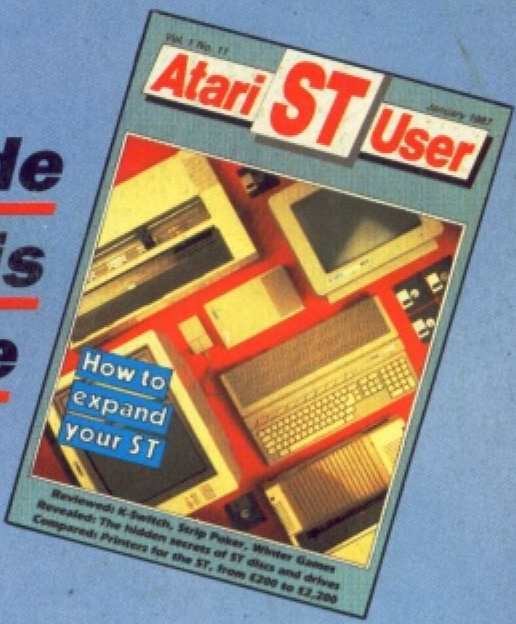
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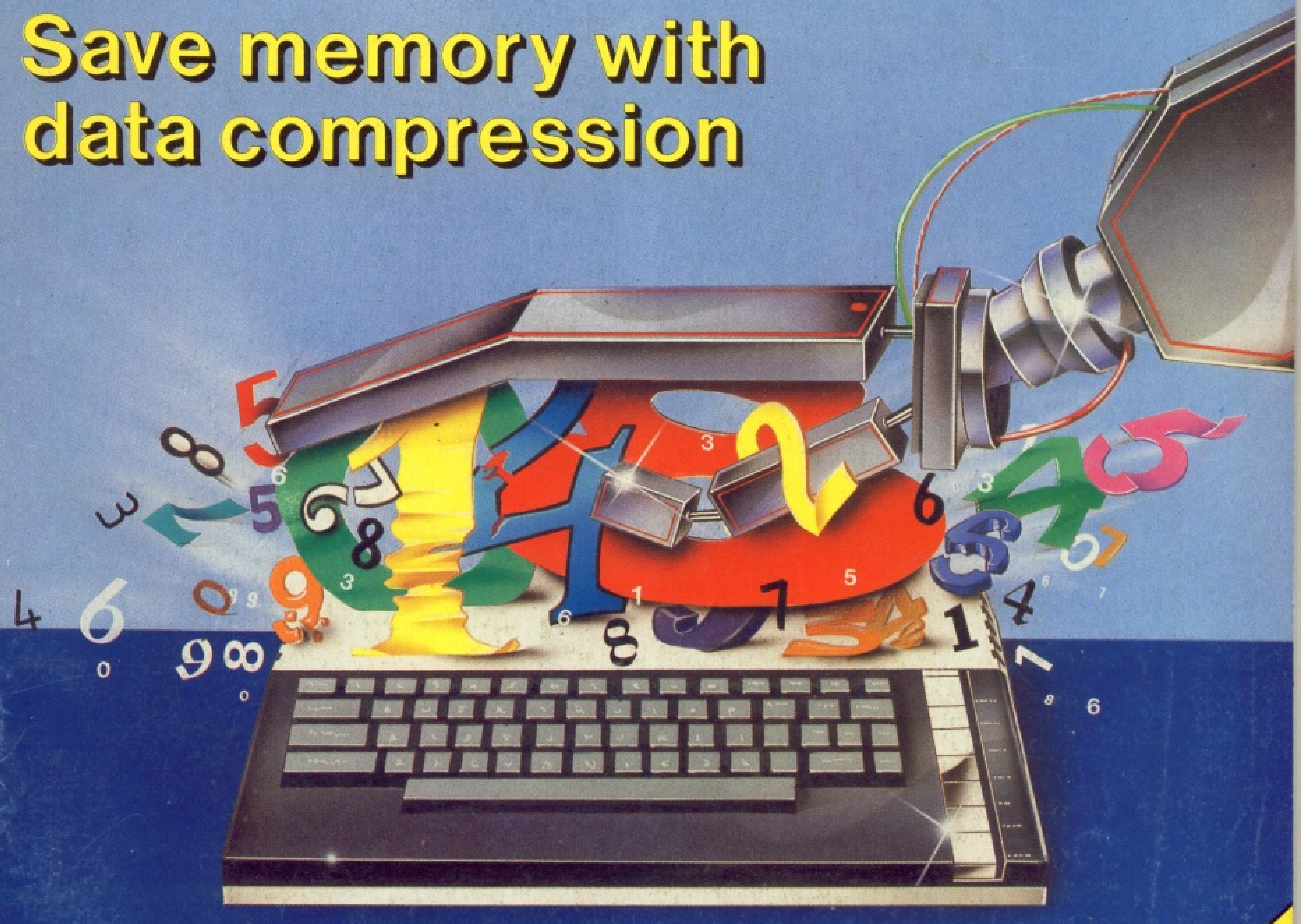
ATARI USER

Vol. 2 No. 9 January 1987 £1

Inside this issue



Save memory with data compression



Mastering your Atari's IO ports

Peripherals: Extending your system

Atari's 80 column add-on reviewed

Atari User Show – a full report

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Vol. 2 No. 9 January 1987

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Don't miss this launchpad for all that's new in Atari computing

ATARI COMPUTER SHOW

10am-6pm Friday, April 24
10am-6pm Saturday, April 25
10am-4pm Sunday, April 26

Champagne Suite, Novotel, Hammersmith, London

Experts are convinced 1987 will be the Year of Atari – thanks to exciting developments in the ST range, coupled with a renewed commitment by Atari to support and encourage the ever-popular Atari 8-bit range.

New hardware enhancements, and hundreds of new software packages, testify to how writers and developers throughout Britain and the USA are creating new ways of exploiting the power of Atari computers – and they'll all be on display at the April Atari Computer Show.

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MORE hardware add-ons
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Atari to launch 'Amstrad basher'

ATARI is about to launch its "Amstrad basher" – a new ST aimed at small businesses and serious hobbyists.

To be called the 520STFM, its £399 price tag places it in direct confrontation with the recently launched Amstrad PC1512.

Similar in appearance to the 1040STF, it has a modulator for TV like the 520STM and a built-in 500k disc drive like the 1040STF.

The 520STFM matches the Amstrad IBM clone for memory but is faster and more low cost software is readily available.

And with the soon-to-be-launched Robtek IBM Emulator plugged in it becomes PC compatible.

The new machine has an unusual history. It nearly didn't make it to the marketplace because for a long time it wasn't considered a viable product for the UK.

But recently-appointed Atari UK general manager Bob Gleadow ordered it dusted off and readied for sale.

"This is definitely a good configuration for the ST and it will be in the shops in quantity by the end of this month", Gleadow told *Atari User*.

Macintosh emulator will go on sale soon

THE controversial "Mac emulator" for the Atari ST – exclusively revealed in November's issue of *Atari User* – has now crossed the Atlantic.

Robert Zysblat, director of Middlesex-based distributor Robtek, says a McEmulator will be in the shops in Britain any day now.

"The response has been explosive", he told *Atari User*, "and at a retail price of £169.95 we are talking about a lot of money".

The product is a plug-in cartridge giving ST users access to some of the most sophisticated software on the market.

When plugged into a 1040ST with monochrome monitor it effectively turns the machine into an Apple Macintosh.

This means the ST can run programs such as Macintosh Plus, MacWrite, MacPaint, MacDraw, PageMaker, LaserWriter, Excel, and Lotus Jazz.

As well as providing access to an entire new range of top-flight business software, the device also opens up the possibility of professional standard desktop publishing on the ST range.

West Coast manufacturer Data Pacific has been selling the device since last autumn.

It was first shown in America early last year, but hurriedly withdrawn when Apple threatened legal action.

This was because the original design incorporated two Macintosh roms necessary for an effective interface between software and ST.

Data Pacific later re-released the device without the roms. Purchasers have to persuade their local Apple dealer to supply them with the roms from the official Apple spares list.

The same situation will apparently apply to the Robtek product to be sold here.

But whereas Apple is said to be close to taking Data Pacific to court in the US for alleged infringement of copyright, Robtek anticipates no such difficulties in the UK.

The firm estimates an initial demand for the McEmulator of 5,000 in Europe and 25,000 in the US.

It has just signed a one million Deutschmark contract with German firm Microhandler covering all its ST products including the McEmulator.

"This agreement will further establish our penetration into all of Europe", said Zysblat.

IBM dealer to sell STs

ATARI has signed an agreement allowing Mersyside IBM PC dealer and business centre Data Exchange to stock Atari products, in particular the ST range.

Both the 520STM and 1040STF 16 bit machines will be offered immediately. They will be followed in due course by the new two and four megabyte ST computers, the hard disc option and the IBM co-processor expected in the UK early this year.

Initially, software packages from Atari such as Fastcom and dBman as well as titles from Psygnosis, Kuma and Antic will be stocked.

Data Exchange plans to widen this range in the near future to include entertainment as well as business applications.

"We are looking for a new breed of dealer to stock the systems, which will be on sale in 1987", said Atari UK general manager Bob Gleadow.

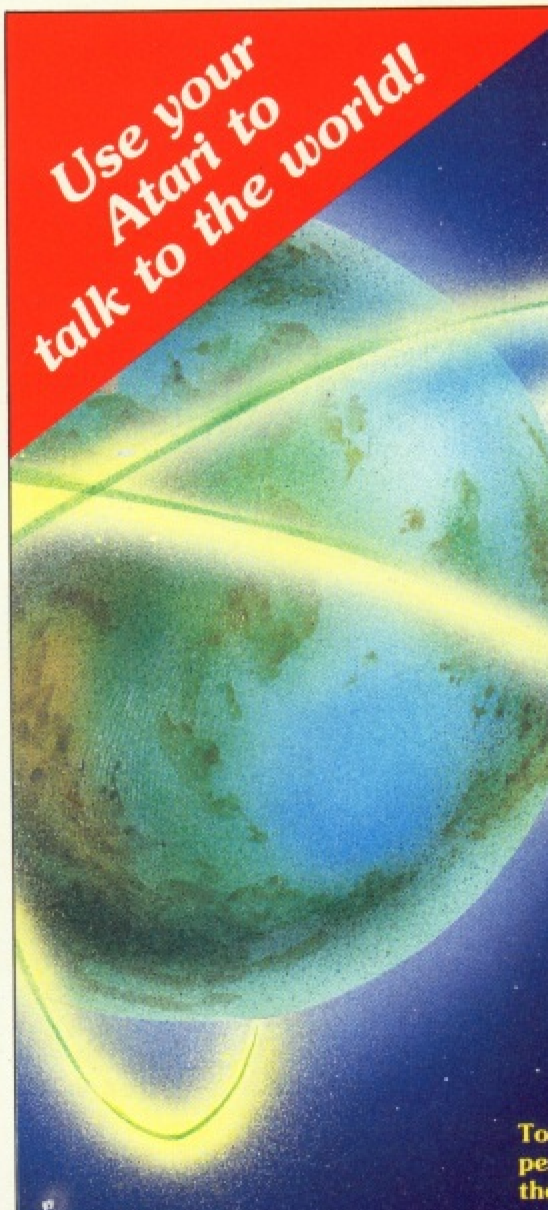
"The addition of two and four megabyte machines to the ST range is going to attract a different kind of user".

MIDI SEQUENCER

AMERICAN manufacturer Midisoft has released Metatrack, a multitrack midi sequencer for the Atari ST.

It features real-time and step-time recording, three modes of quantization, and cut/paste editing between tracks.

Midi system real-time commands and midi song pointer commands are used to provide full synchronisation with external midi devices such as drum machines and other sequencers. Price $99.


Use your Atari to talk to the world!

Online Santa a hit

THE decision by Father Christmas to go online for the festive season proved a major attraction for the kids – even for some obviously rather big ones.

What else could account for the electronic requests for Porsches, pay rises, Swedish au pairs and Page Three girls which flooded into the North Pole?

Yet another first for MicroLink, the UK's leading electronic mail service, SantaLink attracted some 1,000 messages in the first week alone.

And of these more than one third are believed to have come from adults.

Equipped with an Atari micro, Santa electronically hooked himself up to the giant MicroLink central computer. Then all that was needed to contact him was any home or office computer.

"The response was quite incredible", said Derek Meakin, head of MicroLink. "It seems that adults enjoy sending messages to Father Christmas just as much as children do.

"Mind you, what he made of some of the more grown-up requests – like the one for a blow-up rubber doll – is quite beyond me . . ."

Shares sale raises $50m

EAGER purchasers of Atari Corporation shares have poured more than $50 million into the company's coffers.

In doing so they have set the seal on Atari's return to financial stability and respectability after being on the verge of collapse less than three years ago.

The public share trading on the American Stock Exchange saw 4.5 million Atari shares sold for $51.8 million – a figure in excess of the company's expectations.

Opening at $11.50, the shares traded sluggishly for most of the day before closing at $12.50.

Most of the cash raised will go to clear off the outstanding $36 million debt left over from the Tramiel family's purchase of Atari from Warner Brothers in 1984.

Warners will retain a 25 per cent shareholding in the company, the largest bundle after Jack Tramiel's 28.2 per cent.

The highly successful share offer marks Atari's remarkable comeback from near collapse to the status of a public company. This positive response from private investors and financial institutions bestows the accolade of public acceptance. And it is further proof for the previously sceptical computer industry of the able leadership of Jack Tramiel and his sons.

The stock offer prospectus reported sales of Atari computers and video games are currently worth $200 million a year.

A leading American financial observer told *Atari User:* "Once again Jack Tramiel has achieved exactly what he set out to do.

"Although slightly later than his original target date, he has put Atari into profit and restored the company to a position of esteem in the financial community".

Atari aiding British programmers

ATARI is offering British authors and developers a fast route to the lucrative global software market through a new department set up specifically to process original ideas for programs.

To be called Software Test, the new group's objective is to set and maintain standards for all software marketed under the Atari label.

This means games, utilities and business programs for the entire range of 8 bit, 7800 and ST machines.

Software Test will come under the control of Atari technical manager Les Player.

He told *Atari User:* "We are currently recruiting the four or five people we need to get it running this month.

"Their job will be to test and evaluate software and ideas submitted to Atari by firms and individuals who can benefit from our worldwide distribution network.

"Jack Tramiel is already on record as saying that much of the best Atari software is coming out of the UK.

"You only have to look at 1st Word and Fast Basic to know what he means.

"Software Test will allow us to offer even greater opportunities for British programmers to market their wares on a global scale under the Atari imprint.

"It will co-exist with a similar set-up in the US and slot neatly in between the present software acquisition and software marketing operations.

"The rewards for programmers whose concepts we develop and market could be phenomenal".

TIMBER TIPS

BUDGET program producer Elizabethan Software has released a utility for Atari 8 bit owners who enjoy working with wood.

Timbercalc is an aid to costing timber-based projects ranging from simple do-it-yourself jobs around the home up to boat building.

It can handle dozens of timber-related and other products with varying prices and thicknesses.

"Atari micros were selected for the initial version of the program because they are low-cost, well tried machines with disc drives", said a spokesman for Elizabethan.

Timbercalc costs £9.99 on disc.

Warranty: Atari spells it out

ATARI has moved to try and stamp out confusion among users about their rights and options when equipment does not perform satisfactorily.

In a statement to *Atari User* the firm points out that it does not handle repairs or adjustments at its Slough headquarters.

"A letter published in the June issue of *Atari User* from reader Norman Williamson is typical of the sort of confusion which exists", a spokeswoman said.

"It urged users to return defective equipment under warranty to retailers within the first 90 days and to Atari itself between 90 days and the end of the 12 month cover.

"In fact retailers buy out the complete warranty from Atari as part of the equipment package price. In effect, they get a discount on the price of equipment for taking on the warranty.

"As a result, consumer warranties on Atari products are provided solely by the retailer or dealer from whom the goods are purchased.

"The consumer's rights are, firstly, the retailer's official guarantee, and, secondly, the consumer statutory warranty of 12 months from date of purchase".

Pacific action replay

LEADING American producer of computer wargames Strategic Simulations has released Warship for the Atari 8 bit machines.

Practically every ship that fought in the Pacific from 1941-45 is included.

Players can choose from 79 types of vessel from the Allied or Japanese fleets – or they can modify data to create their own warships.

Four scenarios are included, but players can depart from them to devise original maps and ship-to-ship surface engagements.

During combat the micro keeps track of every shell hit and calculates damage based on such factors as armour strength, location of hit and penetration.

Unlike some other naval wargames, damage control in Warship can reduce the effects of fire, flooding, rudder and electrical damage – all recorded – during the course of play. Price $59.95.

* * *

BUSINESS software house Sagesoft has produced versions of its Bookkeeper, Accountant and Accountant Plus programs for the Atari ST.

Bookkeeper costs £99, Accountant £149 and Accountant Plus £199.

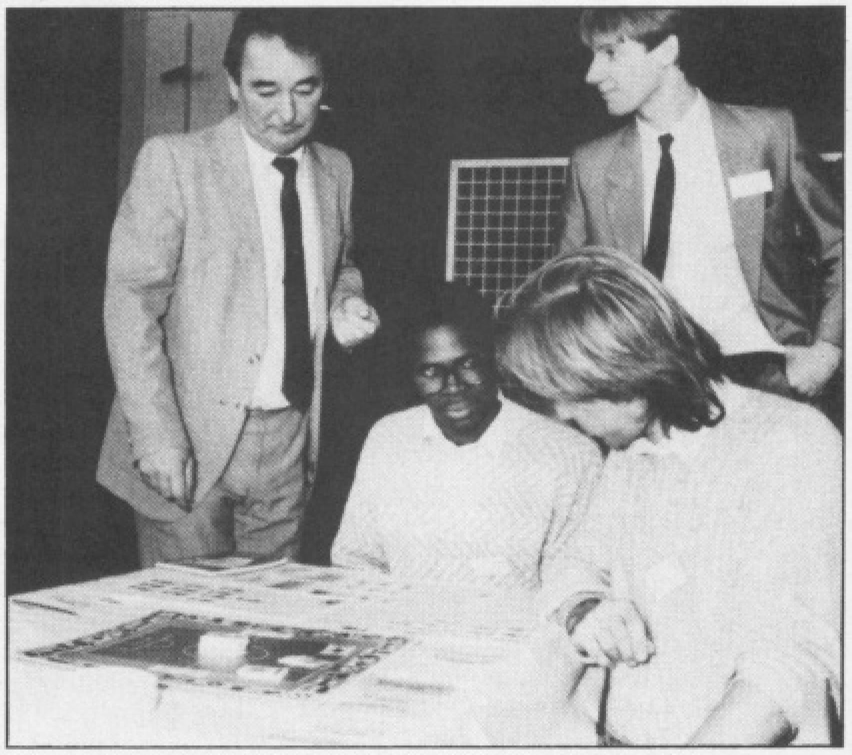
* * *

Which member of the Royal Family had 11 fingers ? To find out you'll have to buy the new Trivia Challenge from Microdeal for the Atari ST.

The quiz program also allows users to create their own question-and-answer files. Price £19.95.

* * *

LATEST batch of releases in the Silver 199 range from Firebird includes outer space shoot-em-up games Warhawk and Caverns of Eriban for the Atari 8 bit micros. Price £1.99 each.



Brian Clough and CDS Software managing director Giles Hunter referee a game of Football Fortunes.

Call for better Atari software

A CALL has gone out to entertainment software houses to improve their standards to cater for the increasingly sophisticated Atari user.

It comes from Stewart Bell, managing director of the recently-formed UK affiliate company of MicroProse, the leading developer of simulation software in the US.

"The problem is that too many software houses are apparently working on the assumption that end users have IQs less than orang-utans", he says.

"However they couldn't be more wrong. For just as micros are becoming ever more sophisticated, so too are the users – and no more so than in the case of Atari people".

The result of all this, according to Stuart Bell, is that Atari machines are not realising their full potential as vehicles for entertainment.

As the UK boss of MicroProse – the company known for its award winning entertainment simulation software – Bell is not at all pleased with this situation.

For his company claims its product is in the Rolls Royce category. Producing only a handful of titles each year, MicroProse spends up to $1 million on the development of each, so guaranteeing they will be blockbusters.

"So you can understand why we become a little irritated when our software occasionally turns up on the shelves next to the cheap and nasties", says Bell.

MicroProse has a whole range of titles available on tape and disc for the Atari 8 bit machines – Nato Commander, Mig Alley Ace, F-15 Strike Eagle, Kennedy Approach, Crusade in Europe, Decision in the Desert, Silent Service and Solo Flight.

Silent Serivice is also available for the Atari ST.

The appointment of former Atari employee Simon Barnard as software development manager of MicroProse should ensure there will be a continuing flow of new titles for Atari micros in the future.

In another move to strengthen its UK team, MicroPose has appointed John Tweedy as national sales manager.

Soccer survival – by the expert

AFTER a game of Brian Clough's Football Fortunes, CDS Software reckons you'll realise why managing a football team is often a short-lived appointment.

The combined micro and board game for the Atari 8 bit and ST machines was developed along lines suggested by long-term survivor Brian Clough.

Two to five players can be team managers, the remainder of the 10-team league being controlled by the computer.

Managers have to guide their teams through a season by wheeling and dealing in the transfer market and making sure they don't bankrupt their clubs in pay negotiations.

Price £14.95 on cassette, £17.95 on disc for the 8 bit versions, £24.95 ST disc version.

ST K-Graph enhanced

BUSINESS graphics package K-Graph from Kuma Computers has been enhanced and released for the Atari ST as K-Graph 2.

The program enables users to produce charts and graphs, making full use of Gem windows and drop-down menus, and includes such facilities as simultaneous display of up to four graphs each showing different data.

The main new features are maths and trig functions, save graph function, print/rename datasets, statistics, area graphs, and variable x and y origins.

K-Graph 2 can be used in conjunction with K-Spread – also to be upgraded soon – or as a stand alone package. Price £49.95, with upgrades to original K-Graph discs available for £10.

MicroLink

in association with

TELECOM GOLD

NEWSLETTER

Eye on the weather

BELGIAN accountant Daniel Janssens wants fellow MicroLink subscribers to join him in setting up an international network of weather watchers on the system.

Before entering university 10 years ago he set up a simple network, corresponding with other amateur meteorologists in Europe, North America and the Middle East.

"Now I'm a fully qualified accountant my wish is to re-start my network with the help of modern means – computers and MicroLink", said Daniel.

He is looking for people in different countries who are prepared to report local weather conditions daily or monthly to his Brussels mailbox, MAG 95369.

Daniel is also interested in the effects of particular phenomena, such as storms, on the environment.

BOOST FOR EMPLOYMENT

HELPING local firms help themselves is the role of the business information office at Gateshead public library.

And helping Gateshead library to help local firms is the role of MicroLink.

The office was set up to provide free information to firms looking for customers and customers looking for suppliers.

The idea is to keep as much of Gateshead's business as possible within Gateshead – and thereby boost employment within the area.

In other words, whether buying or selling, when a local firm is looking for something it should search locally first before going outside the area.

Business Information Office spokesman Fraser Mackay said: "Our aim is to bring local firms together and encourage inter-trading, rather than see them go elsewhere for their components and raw materials.

"We joined MicroLink to gain access to its telex and electronic mail services and its overseas databases.

As we average 300 enquiries a month – half of them requiring in-depth research – it will help us to have a system that moves information quickly and reliably".

Telex service gets a boost

A FASTER telex service has been announced by MicroLink. It offers instant despatch of telexes to 150,000 users in Britain and more than two million worldwide.

Subscribers can send a telex from home or office in seconds, leaving the powerful MicroLink computer to deal with the drudgery of system bottlenecks.

The MicroLink computer has been chosen as the first in Britain to be modified because it handles such a large amount of telex traffic.

Head of MicroLink, Derek Meakin, said: "The improved telex facility is one that will save MicroLink subscribers time and money, certain in the knowledge their telexes are speeding on their way even faster than before".

Watchdog savages postmen

THE Post Office has been hammered yet again by its consumer watchdog organisation for failing to deliver the goods on time.

"Quality of service still falls below set targets, and overall services still fall short of customers' reasonable needs and expectations", says the Post Office Users National Council in its Customer Audit and Review for 1986.

More than 12 million of the 100 million first class letters posted each week are not reaching their destination the following day – "simply not good enough", says the report.

As much as 25 per cent of first class mail from London to the major cities of Edinburgh, Belfast, Glasgow, Manchester and Liverpool is not arriving on time.

And more than 20 per cent of first class items from Manchester, Glasgow and Belfast fails to reach London the following day. In the case of Belfast the failure rate is almost 30 per cent.

These statistics – the Post Office's own – are based only on the period between the item being timestamped and before it leaves the delivery office for its destination.

"This measurement system does not take account of delays in collection or initial handling, misdelivery or delays in actual delivery", says the report.

"Past experience has shown that letters posted at the same time in the same box can sometimes receive different timestamps or even not be cancelled until the day after posting, despite a collection being scheduled.

"In some areas the last collection of the day will be too late to connect with the despatches to remote areas of the country".

MicroLink News Editor Mike Cowley commented: "This report is yet another gloomy indictment of the postal system.

"Despite its so-called initiatives in the area of mobile sorting offices, rail and air links, the Post Office still fails to deliver a significant proportion of mail on time.

"Businesses just can't afford not to get into electronic mail if they want to compete effectively in the marketplace.

"A company that relies solely on the Post Office to get its message across is like a boxer with one arm tied behind his back".

YOUR chance to join MicroLink – turn to Page 8

American Scene

EDWARD SHARK reports

PRIDE of place at the fall Comdex show went to Atari which, as expected, set up its stand near the entrance to the main hall of the Las Vegas Convention centre.

Measuring 30 by 75 feet, the Atari platform was impressive, particularly since arch-rivals Commodore and Apple were nowhere to be seen.

On the hardware side of things, the best crowd-puller of the show was undoubtedly the new 1200 baud, Hayes compatible modem from Atari – the SH212.

This took precedence over the XEP80 – an 80 column card for the XL/XE 8 bit computers.

The SH212 modem is another of those amazing price breakthrough items that Atari is renowned for.

This fully Hayes compatible beastie offers 300 baud Bell tones, along with V22/1200 baud frequencies for both sides of the Atlantic within its $99.95 price tag.

Unlike many other Atari units, the SH212 modem features a fully-fledged 25-way RS232 port, making it compatible with just about any computer with serial port and appropriate software.

Other features within its budget price tag include touch-tone and rotary dialing, auto-answer and internal loudspeaker.

Expect to see this modem available in the US during March of '86. The UK? Well there are quite a few US dealers who do mail order with credit cards.

* * *

Not exactly of the US but causing a stir over there is a Swedish Atari bulletin board! – seems every Atari comms freak is logging on.

Yes, you read that correctly. Lennart Olsson, a keen CompuServe fan, has opened what he believes is the first Atari-oriented BBS in Sweden and, thanks to some timely intervention on the part of the Swedish telecommunications Authority, access is now at all CCITT speeds up to 2400 baud.

Subject to further liason with the telecoms authority, Lennart tells us that the board may soon be accessible via IPSS/Telenet, which'll make life a lot easier (not to mention cheaper) for us longer-distance callers.

Sorman Information Exhange (SIX) runs on an Apple Macintosh Plus (sheer heresy I know) and carries general computer news and software for the Mac and Atari 8 bit and ST ranges.

At the time of writing SIX has only been operational for about three weeks, but already Lennart has established a financial link with a local business and hopes to install a multi-user version of the board, running a package called Red Ryder Host.

We wish Lennart every success with his new venture.

SIX can be found on 01-046-470-22183 at all normal CCITT modem speeds up to 2400 baud – have fun dialling!

* * *

The December issue of Antic is coming in for some stick on the US networks, as the Tech Tips section at the back of the mag is credited to the Sysop of Atlantic BBS.

Several other sysops in the US are shrieking blue murder since they spotted several of the so-called hot tips appearing way back on their BBSs and in magazines such as Compute! and Analog, the Atari Dos 2.0s manual and even good old Antic's back issues themselves!

* * *

The ST blitter chip was displayed at Comdex in its final configuration and looks pretty impressive.

Latest reports from Atari HQ indicate that this $120 add-on to the ST will be available from February. The chip comes as an easily fitted piggy-back rom unit which fits into existing PCB slots.

* * *

Cause of a lot of excitement at the show was Backup!, a hard disc recovery program from MichTron.

And it's understandable: When a hard-drive crashes, there isn't any noise. No smoke, no fire, no broken glass or twisted metal. Physically, everything remains pretty much intact. But datawise... 30 megabytes of amnesia?

That's bad news in anyone's book, and such events are virtually irrecoverable.

The best way to cure such problems is prevention. But how often do you make backups of a quarter billion bytes of computer memory?

And even so, are they accurate and up-to-date? Would you stake a month's lost work on it? Or even a week's? Probably not.

Now you don't need to. MichTron's new Backup utility is for those of us who like things quick and simple.

Backup duplicates the contents of your hard drive to floppy discs, minimising the risk of loss.

It also lets you restore the floppy backups back to the hard-drive after an accident, reducing any actual loss to an absolute minimum.

But much more than that, Backup's specialised routines are very fast and the program orchestrates the entire backup procedure for you, minimising time and effort as well.

Intelligent routines give you the option of making full backups of the entire hard-drive, backups of only newly created or modified files, or backups simply by date.

You might even decide to make an image backup – transferring logical sectors to counterpart floppies, saving even more time.

Backup will be available from MichTron from December 1st onwards for $39.95 and runs on any Atari ST with a hard drive.

MichTron, in case you hadn't heard of it, is a growing company in Pontiac, Michigan, and is currently the largest producer of software for the Atari ST in the United States.

* * *

Still on the subject of hard discs, the Supra Corporation has notified owners of the Supra 30Mb Hard Drives manufactured by NEC that they may develop encoding problems.

In a message sent to users of the Atari Developers' Forum on CompuServe, Supra said that some disc drives manufactured between August 15 and October 15, 1986, have been known to fail after extended use.

Encoding problems can lead to scrambling of the disc directory and subsequent loss of data, so it is important to determine if your Supra 30Mb drive was manufactured during the suspected problem period.

To do this check the identification plate on the bottom of the drive. The manufacturing date shown is in the format of MDDYY or MMDDYY.

Users who suspect a problem with their drive should contact Supra Technical Support on 0101-503-967-9081.

Get by with a little help from your friends

By Brillig

THIS month sees the start of our Lifeline corner: If you'd like to help others, send in your name, address and the titles of the adventures you're willing to help out on and we'll publish these details in Lifeline. Telephone numbers will not be printed – it's mail only assistance from experienced adventurers that we're after.

When you write to a reader listed in Lifeline, please always remember to enclose a stamped, self-addressed envelope for a reply. The Lifeline volunteers have kindly agreed to donate their own time to helping you so please help them by enclosing an sae.

This month's hints and tips are in response to queries from Ken White (Colossal Cave), Linda Naysmith (Zork II) and A. Jones (Hitch-Hiker's Guide To The Galaxy – HHGG).

The clues given should help, though I must admit to having the odd dose or two of elixir while mulling them over...

Mr Jones also mentions a couple of glitches he's found. First, in HHGG, he says that if you enter the sauna several hundred times, the top line of the display becomes corrupted. I'm not surprised! Why anyone would want to visit the steam room that many times, unless they have a serious weight problem, beats me.

So I think we can forgive Infocom – even someone with a brain the size of a planet wouldn't have foreseen that one.

His second glitch similarly involves repetition of an action. Persistence is one of the qualities you need as an adventurer and Mr Jones has it in spades. In The Payoff, Drop All then repeatedly Feel Pain, Open Safe and Take Control.

After several turns, you will be told "I'm carrying too much" but asking for an inventory reveals that "I'm not carrying anything".

Michael Plan of Wolverhampton is in the dungeon in Waxworks and wants to know how to secure the trapdoor with the beam. I haven't actually been there myself – does anyone know?

Both he and Ken White mention that if you Bury anything in Red Moon, it disappears forever. I don't think this glitch is quite what Level 9 intended but it sure makes life easier!

That about wraps it up for this month. Keep those letters coming. Exciting adventuring! ■

GLITCH OF THE MONTH

Jon Bradbury of Sheffield has spotted a glitch at the very end of Zork I. The description states that "You are standing before a Barrow of Stone. In the east wall is a huge stone door, which is open".

However, if you EXAMINE STONE DOOR, you are told "The stone door is closed". As Jon says, all very illogical, Captain!

Jon must hold some sort of record for finding a glitch at the very end of an adventure – can anyone beat it or find one right at the start?

LIFELINE

The following readers offer their postal help with these adventures:

- Linda Naysmith, 57 Ravenswood Rise, Dedridge, Livingston, West Lothian EH5 6PF: Snowball, Return To Eden, Emerald Isle, Red Moon, Earthquake 1906, Curse of Crowley Manor, Escape From Traam, Golden Baton, Wizard of Akyrz, Perseus and Andromeda, Arrow of Death 1 & 2, Time Machine, Feasibility Experiment, Escape From Pulsar 7, Ten Little Indians, Circus, Waxworks, Pirate Island, Dallas Quest, Zork I.
- Eric Nolan, 27 Whitebrook Park, Tallaght, Dublin 24: Transylvania, Stranded, Snowball, Lords of Time, Dallas Quest, Zork I, Enchanter, Colossal Adventure, Seastalker, Asylum, Ghost Town, Hulk.
- Nigel Morse, 11 Greenleafe Avenue, Wheatley Hills, Doncaster DN2 5RG: Zork I, II & III, Planetfall, Suspended, Starcross, Hitch-Hiker's Guide to the Galaxy, Wishbringer, Infidel, Cutthroats, Enchanter, Sorcerer, Snowball, Mordon's Quest.

HINTS 'N' TIPS

COLOSSAL CAVE – *Rainbird*
What use is the huge mirror?
UOYN OKCI RTAY ALPO TTSU J
NOIT CELF ERRU OYSI NOYN ACEH TSSO RCAE RUGI FYWO DAHS EHT

HITCH-HIKER'S GUIDE TO THE GALAXY – *Infocom*
Can't demonstrate your intelligence to the door?
XODA RAPA SIRE WSNA EHT
EMIT EMAS EHTT AAET ONDN AAET EVAH TSUM UOY

ZORK II – *Infocom*
Can't open the rusty box?
TROP ERAE SUOH DLUO CELO HGNO LBOE HT
Trapped with the red sphere?
TFIL LANO ITAS REVN OCAY RT
Sea serpent proving fatal?
MUIR AUQA EHTM ORFY AWAW ORHT S'EN OTSA PEEK
Oddly angled room a mystery?
WS, WN, EN, ESO GTAB EHTM ORFO SHCT IPLL ABES ABAS ITI
Topiary hedges baffling you?
TNAV ELER TONE RAYE HTSA MEHT ERON GI

CLOSE to 10,000 people flocked to the Atari Computer Show during the three day event in London. Mingling with the crowds to cast a critical eye over what was happening was a team from Atari User. Here André Willey reports on what he discovered on the 8 bit front while Andrew Bennett reveals what he found in the world of the ST.

Seen at t

Games console has super graphics

THE UK launch of the 7800 games console at the Atari Christmas Show must have been an eye-opener for those who thought that the dedicated games machine market was dead, *reports André Willey.*

Atari started the ball rolling 10 years ago – and it looks like the company will be responsible for its resurgence with the new model.

In a calculated marketing move, Atari has designed a machine with fantastic new graphics facilities, but which will still be able to run the enormous number of 2600 games cartridges, thus opening up the first real upgrade market in video game console history.

The unit is based around a 6502 chip running at 1.79 MHz, with 4k each of ram and rom. Its screen display – handled by the Maria chip originally destined for the 8 bit computer range – has a resolution of 320 by 200 pixels, with up to eight colours from a palette of 256 on screen at once.

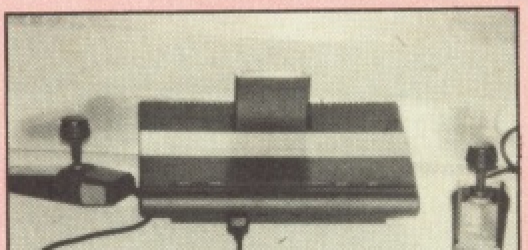
There are no hardware sprites as such, but the unit does feature up to 64 software sprites. Development systems to enable users to design the 64k or 128k games cartridges that the 7800 uses are available from Atari, running, of course, on the ST.

Although development 7800s were on display at the Show, the unit will not be available until the middle of 1987, by which time Atari claims a good number of games will be available. The price has yet to be fixed, but educated guesses weigh it in at around the £70 mark.

Titles currently available in the States for the 7800 include Xevious, Pole Position II, Joust, Pac Man and Ms. Pac Man, Galaxians, Food Fight and Dig Dug.

The Show also demonstrated conclusively that the 8 bit range is alive and well in the UK.

New games were very much in evidence from leading software houses



such as Databyte, Tynesoft and Red Rat software.

Red Rat had Laser Hawk and Domain of the Undead, plus its new Screaming Wings game. These each cost £7.95 on tape or £9.95 on disc.

Databyte, which specialises in licenced US products, launched Montezuma's Revenge, Adam Caveman and Polar Pierre, all priced at £9.95 on tape and £14.95 on disc.

Tynesoft demonstrated Jet Set Willy which for the first time is to be released in cassette form at £7.95. Who Dares Wins and Winter Olympics are both due out soon from the company.

By displaying the new XEP-80 module on its stand Atari was letting the world know that 8 bit machines are still a force to be reckoned with in the small business market.

Until now there has been no simple way of obtaining a high quality 80 column display on an Atari 8 bit machine. The XEP-80 unit resolves this problem, and also provides a Centronics parallel printer port for good measure.

The unit is styled to match the XE range, but will work with the whole 8 bit range – from the old 400 through to the 130XE.

Release dates and prices have yet to be finalised but usually reliable sources are claiming that it will appear in the shops during the first quarter of 1987 at a price well under £100.

IBM emulator for the ST

A MAJOR breakthrough on the ST front was announced at the show in the form of an IBM emulator.

It comes from Robtek, the same company which recently unveiled the McEmulator. The new IBM device is priced at £99.95 and will allow the ST to run most IBM text programs, so opening up a vast range of additional business titles.

But to date it is not capable of handling the graphics in the PC software packages. This means that it is currently restricted to running only the text of Lotus 1-2-3.

However it is claimed that an enhancement due shortly will remove this limitation on the IBM Emulator. This is almost certain to be offered free of charge to existing users.

Apart from the emulator device itself, ST users need a 5.25in disc drive to make it work.

"This is a most significant development in the market", commented an Atari spokesman.

the Show

Games prices take a tumble

PRICES of games for the ST range are plummeting as high-volume software houses throw their support behind the machines, *reports Andrew Bennett.*

The show revealed the trend with the event being selected as the launching pad for truly budget priced packages.

Tynesoft became the first company to break the £10 price barrier with two ST titles. Both Time Blast and Five Star are space ship adventures priced at £9.95.

Only marginally more expensive at £12.95 were five new games from Anco Software of Dartford – Bridge, Trivia ST, Peggammon, Willy the Kid and Flip Flop.

Bridge includes a tutorial on the classic card game and is aimed at players ranging from beginners to those with "middle expertise".

Trivia can be played by between two and four players, offering a total of 1500 questions on a diverse range of subjects in both English and French.

Peggammon claims to offer a third dimension to the ancient game of backgammon, while Willy the Kid is an adventure game with cartoon graphics.

The fifth budget offering – Flip Flop – recreates the board game Reversi on the ST.

Anco also unveiled three slightly more up-market games titles for the ST at £19.95 each.

Space Pilot enables the player to roam the skies of alien planets while repelling the attacks of hostile star ships against eight spectacular scrolling backgrounds.

Anco's mouse-controlled ST Golf offers immediate membership of the fairway to play or practice. The program allows complete control of the club. There's even a built-in construction set to design a golf course.

Thai Boxing from Anco is a 3D game which enables the player to compete against one of six backgrounds. As injuries are inflicted to the face and body of the opponent these are revealed in graphic detail and colour. "It's not for the fainthearted", said a company spokesman.

Meanwhile on the simulation front Microdeal was offering two more conventionally priced games packages at £24.95.

Shuttle II, as the name implies, involves a NASA flight from take off to retrieving a damaged satellite. The game features 3D graphics and realistic maps and control displays.

Karate Kid II, based on the film of the same name, includes tests of agility and features cartoon style graphics.

"We are delighted with the way the games software houses have realised the potential of the ST range", said an Atari spokesman at the show.

★ ★ ★

ATARI took the unusual step of manning its stand with technical rather than sales staff during the Christmas event.

Questioned about this decision, an Atari spokesman said: "We wanted people closely attached to the products.

This meant we could easily handle most of the queries raised".

What the exhibitors said . . .

HOW successful was the Atari Christmas Show?

The people who are probably in the best position to assess this were at the sharp end of the three day event – the exhibitors.

Here is what they had to say when approached by *Atari User:*

"Absolutely fantastic. There could be no possible cause for complaint from anybody" – Tony Deane, Silica Shop

★ ★ ★

"We had an excellent show. We made a lot of contacts and were very pleased with the outcome" – Jenny Wylie, Robtek

★ ★ ★

"An amazing amount of interest generated with people still coming back to us with queries. A great success which raised the public's awareness as to who we are. We made a lot of new friends" – Bernard Jones, Syndromic Music

★ ★ ★

"A fantastic roaring success. The finest show we've ever done. An enormous demand for our products, so much so that we had to stop using the till at one point and start using a bucket" – Mike Jones, Software Express

★ ★ ★

"We did a roaring trade as usual and broke all records. We're always pleased with Database who do a good show" – Steve Burke, Compumart

★ ★ ★

"It went very well for us. Our products were very much in demand and we sold out of everything we took down" – Charles Moir, Computer Concepts

★ ★ ★

"The show was a particularly good one for us and we were very pleased with the number of visitors who came to our stand and showed an interest in our products" – Catherine Jones, Kirk Automation

★ ★ ★

"Not a very good show at all," Mark Daniels, Centec. However his company has already booked for the next Atari Show . . .

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Airwolf	7.50	–
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Alternate Reality 2	–	15.00
Asylum	8.00	12.00
Aztec	8.00	12.00
Ballblazer	8.00	12.00
Beer Belly Bert	2.50	4.00
BMX Simulator	1.70	–
Boulderdash 2	8.00	12.00
Caverns of Eriban	1.70	–
Chicken Chase	2.50	–
Cloak of Death	2.50	–
Colourspace	6.50	–
Collapse	1.60	–
Collossus Chess	8.00	–
Crusade in Europe	11.00	–
Crystal Raider	1.70	–
Darts	1.60	–
Decision in the Desert	–	15.00
Diamond Mine	1.60	–
Drop Zone	7.50	11.00
Emerald Isle	5.50	–
Excelsior	1.70	–
Fighter Pilot	8.00	10.50
Football Manager	7.50	–
Ghostbusters	8.00	–
Go Forth	–	21.00
Greatest Hits	8.00	12.00
Hard Ball	8.00	–
Hulk	2.50	–
International Karate	5.50	–
Jewels of Darkness	12.50	16.50
Kayleth	–	12.00
Kennedy Approach	11.50	14.00
Kik Start	1.60	–
Koronis Rift	–	12.00
Last V8	2.50	–
Leaderboard	8.00	12.50
Mercenary	7.50	10.50

TITLE	Cass	Disc
Mercenary Compendium	12.50	15.00
Movie Maker	–	14.00
Montezuma's Revenge	8.00	12.00
Molecule Man	1.70	–
Ninja	2.50	–
Ninja Master	1.60	–
Nuclear Nick	2.50	4.00
Ollies Follies	2.50	–
Olympic Skier	2.50	–
Price of Magik	8.00	–
Racing Destruction Set	–	12.00
Raid Over Moscow	8.00	12.00
Red Moon	5.50	–
Red Max	1.70	–
Rescue on Fractulas	8.00	12.00
Scooter	2.50	4.00
Second City	5.00	–
Shamus	2.50	–
Smash Hits Vol 4	8.00	12.00
Smash Hits Vol 5	8.00	12.00
Smash Hits Vol 6	8.00	12.00
Soccer	1.60	–
Spellbound	2.50	–
Spitfire 40	8.00	–
Spy v Spy 2	7.50	12.00
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Sun Star	7.50	12.00
Swat	1.70	–
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Thrust	1.60	–
Trialblazer	8.00	12.00
Ultima 4	–	15.00
Vegas Jackpot	1.60	–
Vietnam	–	12.00
War Copter	6.50	–
Warhawk	1.70	–
Worm in Paradise	7.50	–

ATARI ST

TITLE	RRP	Ours
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Brataccus	34.95	28.00
Cards	19.95	16.00
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Devpac ST	49.95	40.00
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Easy Record	39.95	32.00
Electronic Pool	19.95	16.00
Film Director	59.95	48.00
Flipside	19.95	16.00
Hacker 2	29.95	24.00
Habawriter	59.95	48.00
Habadex	49.95	40.00
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Habaspell	39.95	32.00
Hitch Hikers Guide	28.95	21.00
Introduction to ST Logo	19.95	16.00
Jewels of Darkness	19.95	16.00
K-Seka	49.95	40.00
K-Ram	29.95	24.00
K-Spread	49.95	40.00
K-Com Version 2	49.95	40.00
K-Data	49.95	40.00
K-Word	49.95	40.00
K-Graph	39.95	32.00
K-Minstral	29.95	24.00
K-Resource	39.95	32.00
K-Switch	29.95	24.00
Karate	24.95	20.00
Lands of Havoc	19.95	16.00

TITLE	RRP	Ours
Leaderboard	24.95	20.00
Leaderboard Tournament	9.95	8.00
Leather Goddesses	29.95	24.00
Little Computer People	34.99	28.00
M. Disc	12.95	11.00
M. Copy	12.95	11.00
Major Motion	19.95	16.00
Mercenary Compendium	24.95	20.00
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Zork 1	23.00	17.00
Zork 2	23.00	17.00
Zork 3	23.00	17.00

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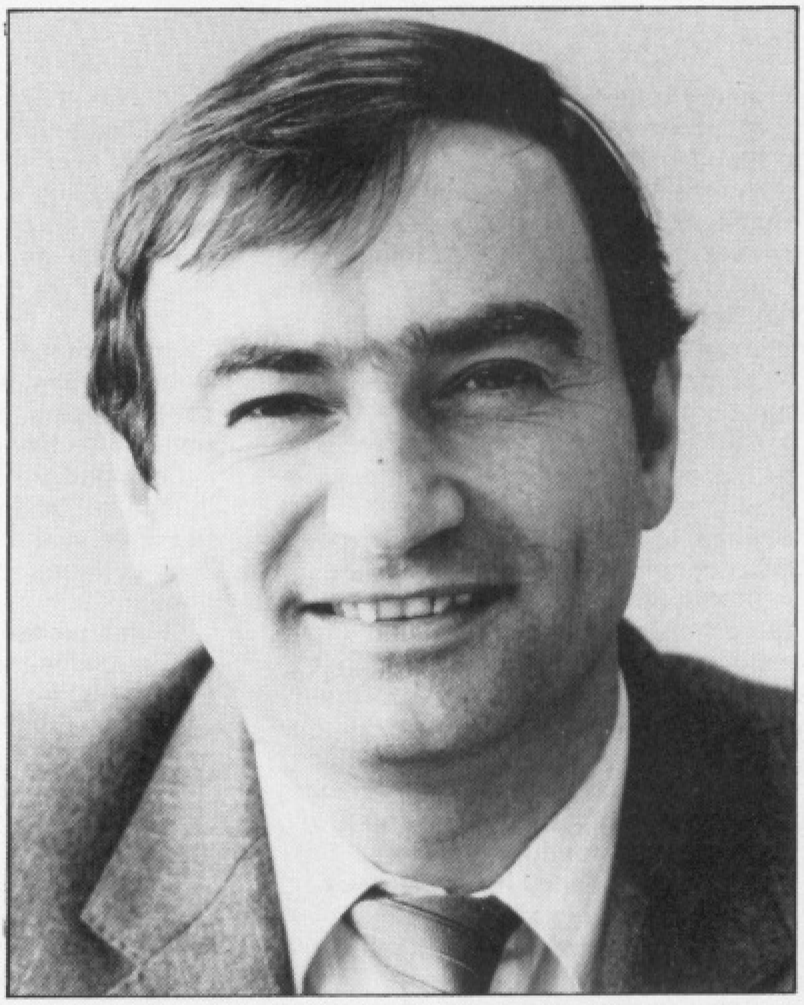
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Back to Atari's roots



And to Bob Gleadow, Atari UK's new boss, that spells . . . ENTERTAINMENT!

BOB Gleadow, Atari UK's new boss, is a blunt-spoken product of the North East who is tough enough to have stood his ground with Jack Tramiel – and survived.

In fact there is little of the dodging and weaving about him that seems to be a characteristic of many corporate computer executives these days.

If he doesn't like something, he'll tell you straight. And the problem is that he didn't exactly like what he found when he arrived at Atari.

The truth of the matter – according to Gleadow – was that while not everything was wrong, most of it was.

It wasn't the staff there that put his back up. Nor was it the product that he found lacking. It was the fact that the Atari message was still lying around gathering dust in Slough.

"I found a company that had by and large failed", he says. "And that was because we had not succeeded in letting people know what we had to offer".

Not a man to do things by halves, Bob Gleadow intends to effectively start all over again.

"I want to go back to the basics and tell people that if they are buying a machine which they want to get some entertainment out of, which they want to use for home productivity, which they want to use to teach their children, then they may as well go along with mine", says Bob Gleadow.

"That's because we offer better sounds, better graphics and programs oriented towards what they really want to do with their machines".

The new Atari supremo is convinced that the company must return to its roots if it hopes to achieve its full potential.

And for Bob Gleadow that means, first and foremost, entertainment.

"We've had our blinkers on too long", he insists. "Atari had almost started to believe the market wasn't down there any more.

"But all you need to do is wander round a computer show and every second person is under 16 and they are talking about this game or that game.

"These people are computer literate but they get far more out of playing the latest version of Space Invaders than they do out of constructing a program in Basic.

"What has happened is that stuck in our ivory towers we had almost lost touch with what the man on the street really wants".

And Bob Gleadow isn't the type to remain in an ivory tower for too long. His upbringing in the depressed North East is responsible for that.

Born in County Durham in 1948, his father was the licensee of a club in the grim steelworks town of Consett.

As a youngster, Bob was known as a bright – if somewhat cheeky – kid who was always in trouble.

School days saw him swing towards science subjects and he finally emerged after taking his 'A' levels clutching a book on organic chemistry as a prize for his academic achievements.

"I still haven't got round to reading it", he says.

His first job was as a management trainee with the famous diesel engine firm of Cummins.

It was here that his shrewd head for business became apparent not only to those around him but also to himself.

For he found himself called upon to appraise capital acquisitions before Cummins handed over any money.

"And this gave me an analytical outlook which has stood me in good stead ever since", he says.

The only other thing Bob Gleadow claims to have truly mastered at Cummins was the ability to wander round holding a piece of paper so no one asked him what he was doing.

His next move was to MDS, a company recently established in the North East to manufacture card readers and data recorders.

"It was here that I first learned the

industry buzz words", he recalls.

In fact he was to learn much more as a result of the collapse of the market the company was in. For as the tiers of management started to disintegrate in the wake of the financial problems, the high priced executives began to make for the door and young Bob Gleadow started moving up the ladder because – as he puts it – "I was cheap and cheerful".

By 1974, he found himself in charge of material control and warehousing. And that was the year he had his first eyeball to eyball confrontation with Atari chairman Jack Tramiel.

At that time, Tramiel was the driving force behind Commodore and Commodore just happened to be in the market to buy the troubled company which employed Gleadow.

"The thing that I noticed about Jack when I first met him was that there was like an energy field around him", recalls Bob Gleadow. "He was very active, very aware, he didn't miss a trick".

The young executive obviously impressed Jack Tramiel as well.

One Sunday afternoon some time later, he called through to the North East and handed over the factory to Bob Gleadow.

"Suddenly it was all mine", he remembers, "the whole factory that employed 400 people was now reporting to me.

"Mind you, I was under no real illusions. There had been many casualties (it is often said that Jack Tramiel doesn't take prisoners) and I was just lucky that I wasn't one of them.

"At the same time, Commodore's position in the calculator market was under threat from the Japanese, so we all knew we were in for a time of real retrenchment".

For the next nine years, Bob Gleadow was involved in just about everything that Commodore did.

But his speciality – the area in which he shone – was in marketing clean-ups.

Known as the hard-end of the computer game, this involves getting rid of stock that to put it politely has "aged".

And with Commodore finding considerable difficulty in moving its old calculator stock, he was kept pretty busy.

However, he did find the time to become embroiled in the embryo home computer marketplace following the arrival of the Commodore Pet.

Originally conceived as an advanced scientific calculator, the Pet caused a sensation at the time of its launch.

"It was a very exciting time", says Bob Gleadow. "My first impression of a micro was that its potential was in business, not entertainment.

"As an engineer's tool, as a device controller, as a business system, I could see an enormous market even then".

Under Jack Tramiel's leadership, Bob Gleadow worked first in the UK, then Europe and finally was despatched to Hong Kong.

Commodore had decided to set up its control and planning centre in the Far East and the Crown Colony had been chosen as the base of operations.

"I was picked for this job because I had a disciplined approach to management organisation which went back to my days at Cummins", remembers Bob Gleadow.

"Everything out there was in total growth mode – which translates as chaos – but we all pulled together and had a great deal of fun".

However, the fun stopped the day the news filtered through that Jack Tramiel had walked out of Commodore.

> ***"I believe Atari needs to be more aggressive in its pricing"***

"It was a rumour at first but then we couldn't get in touch with him", says Bob Gleadow. "And that after he'd always been contactable for ten years.

"When it was finally confirmed, I felt disgusted. To me it was Jack's company".

Almost exactly two years after Jack Tramiel left, Bob Gleadow departed Commodore.

"In the intervening time, I had become more and more frustrated", he says. "I felt myself to be a dinosaur in that I belonged to a previous age – an age where you made instant decisions and saw them through".

The Gleadow family stayed on for another five months in Hong Kong to see "all the sights we missed" before returning to the UK and a home back in the North East.

It was around this time that the Tramiels made overtures to Gleadow to join Atari, which they now controlled.

But it seems that at first he turned them down.

And for that reason Jack wasn't very pleased.

"Jack would have had me assassinated a year ago if he could", says the new man at the top of Atari UK. "He was very disappointed that I hadn't joined".

However, Bob Gleadow eventually changed his mind after being contacted by an old friend, Atari president Sam Tramiel.

"My first question to him was what does your father think of the idea", says Bob Gleadow.

"I honestly never thought I would work for Atari. In fact the best I thought I could hope for was to get into a situation where Jack would talk to me again.

"Anyway, here I am".

Within hours of moving into his new offices in Slough, the new number one at Atari UK had formulated his battle plan.

He believes the company has serious shortcomings in three major areas – distribution, marketing and sales.

"Our product is excellent", he insists. "Now what we've got to do is to present ourselves as the credible alternative I believe we are.

"Once we have reached the name distributors, then our advertising becomes that much more effective. And from that sales will come".

Under Gleadow, Atari UK will not – for the time being at least – be making a full frontal attack on the corporate market.

"Let the clones, let Amstrad, let IBM sort that out for the time being", he says. "When the dust has settled we'll take another look at it.

"In the meantime, the home market, the entertainment market is where Atari is to set its stall".

So what does the future hold for Atari UK with Bob Gleadow at the helm?

"I believe Atari needs to be more aggressive in its pricing – and in 1987 I'm confident that it will be.

"We will not become involved in fighting with other companies. What I intend to do is to take a specific look at perceived value points and make sure that we offer something at each level".

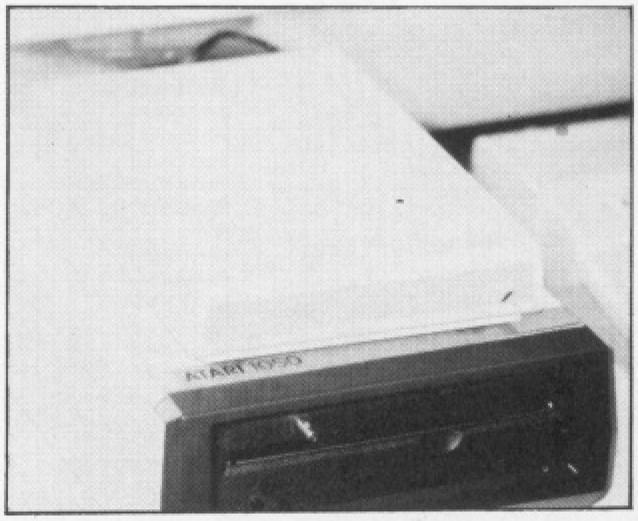
Two markets which Atari has targeted are the youngsters and those people who were missed in the first wave of computerisation.

"If we can get to the eight year old with his first game to recognise that Atari offers him value for money and quality, when he comes to buy his first real computer why should he go to another company?

"Nor have we forgotten about all those people out there who have never come to grips with a micro.

"We are going back to our roots to bring computers to the man in the street once again". ■

Now 8 bit Ataris can take the broad view



ANDRÉ WILLEY looks over the XEP-80 module

ONE of the main criticisms of the Atari 8 bit range when it comes to small business use is that it lacks a display mode allowing a full page width of characters to be shown on the screen.

Until now there has been no simple way for it to compete with the BBC Micro and the Amstrad. However, all that is set to change when Atari launches its XEP-80 80 column module in the first quarter of 1987. No price has yet been fixed, but we are assured that it will retail at well under the £100 mark.

The new unit is encased in a light XE grey box about the same size as a thick paperback book, with a red power LED on the front panel. On the rear panel are the power connection, the output to a monochrome monitor, a 25 way 'D' Centronics printer port and a joystick cable.

The joystick cable is connected to the second joystick port of the host computer – which may be any 8-bit machine from the Atari 400 upwards — and the handler program should then be loaded. At present this program is only available on disc.

Once loaded the unit will switch off the TV display and enable the 80 column output to the external monitor. This then becomes your main display, although you can regain the normal TV output by disabling the 80 column facility.

The 80 column screen behaves in a very similar manner to its 40 column counterpart, and you can use all the normal screen editor facilities such as the cursor keys, insert, delete, clear and tab. There are also a couple of extra commands – cursor home, and move cursor to the left, right or bottom of the screen.

The normal Atari character set is supported, including the graphics and international characters, and these may be printed anywhere you like. In fact, the screen is only a 80 by 25 window on to an area of 256 characters by 25 which can be scrolled horizontally at will.

You can use a Centronics-type printer via a 25 way socket on the rear panel. If you want to use the printer driver without the 80 column screen you select this option on power up.

Atari is asking manufacturers of many of the most popular business programs to modify their software to work with the XEP-80. The first to be completed will be Atari's own Atariwriter Plus, which will then become Atariwriter 80.

Atari also hopes that Precision Software will shortly follow suit with a new version of the popular SuperScript word processor package.

The unit communicates with the host computer via two serial data lines – pins zero and one of the second joystick port. This data is shifted at a rate of 15.7kBaud, which should be fast enough to fill the 80 column screen in just over a second. However the demonstration model we looked at did not seem to run anywhere near that fast.

The data transfer is bi-directional so that the XEP-80 can return information about the cursor position, character data, and so on to the host computer.

This method of communication is the main drawback of the unit. The design philosophy of the 8 bit range has always been that peripherals are connected via the peripheral I/O port, and there are a number of reasons why this makes more sense than using the joystick port.

Firstly, the special driver software could boot automatically from the I/O port in much the same way as a disc drive or 850 module does. This would remove the need to boot up a special disc or cassette at the start of a session.

Secondly, the I/O handler is capable of transferring data packets at a much higher rate than the joystick port. The normal rate is 19.2 kbaud, but it can go even faster.

Because the I/O port has hardware based parallel-to-serial and serial-to-parallel converters, running it at 19.2 kBaud allows both ANTIC and the immediate mode Vertical Blank Interrupt to remain enabled, both of which need to be turned off whenever joystick serial data is sent or received.

Thus by using the I/O port instead of the joystick you could retain the TV display showing a standard 40 column or multicolour graphics display while the monitor displayed 80 columns.

Also the I/O port is already configured to send command instructions and receive data and status back from the device, thus removing the need for the software to "hang" the system while it sorts out the serial data.

Other than this, there is the simple fact that many people keep both their joysticks permanently plugged in, and don't want to be constantly unplugging the second one whenever they want to use the 80 column unit.

Overall then, the XEP-80 is a neat little unit which performs adequately, but with a little more foresight in the design department it could have been a lot more useful. ■

Gold on course



Program: Leader Board
Price: £9.99 (cassette) £14.99 (disc)
Supplier: US Gold, Unit 2 & 3, Holford Way, Holford, Birmingham, B6 7AX
Tel: 021-356 3388

AFTER playing a few golf games on the Atari, including one featuring a player whose club action resembled a one-sailed windmill in a force six gale, I was despairing of a decent golf simulation.

Now Leaderboard already available on the ST, has arrived for the 8 bit.

One to four players can take part, each choosing their level of play from 1 to 3. At the novice level you only concentrates on selecting the club and the force of the shot.

Amateurs have the additional worry of hooking or slicing, and professionals also have the wind to contend with.

You then select the number of holes and the course. Each of the four courses is of 18 holes consisting of two to four islands on a lake, the tee being on one and the green on another.

Having made your selections the first tee is displayed. Three-quarters of the screen is used for the playing area, the rest details your club, yardage to the hole, scores, wind and the power indicator.

Screens are drawn reasonably quickly, showing your player at the bottom of the screen and the view to the hole.

A cursor appears between the golfer and the hole. To aim, the cursor is moved to the direction in which you wish the ball to travel.

After choosing one of the 13 clubs available, you start the swing by pressing the fire button, then release it to lock the power showing on the indicator.

On the two higher levels, pressing the button again determines whether you will hit a straight ball or, more likely, slice or hook.

Animation of the golfer is very good. After gracefully hitting the ball he follows through and watches as the ball lands, bounces and rolls to a stop.

Apart from the golfer and the perspective views, the graphics are only adequate – the lack of trees and bunkers detracts from the realism.

Having said that, the game is great fun to play and I have been hooked (and possibly sliced) on it since I bought it.

US Gold is soon to release a disc for £6.50, containing four new 18-hole courses, and this should keep me playing for quite some while to come.

Ken Grassham

Sound	5
Graphics	7
Playability	9
Value for money	9
Overall	9

Asteroid assault



Program: Warhawk
Price: £1.99 (cassette only)
Supplier: Firebird, 64-76 New Oxford Street, London WC1A 1PS.
Tel: 01-379 6755

HERE'S a new play on the asteroids theme, but the object here is to destroy enemy bases actually on the asteroids!

The opening screen and music promise a little more than this program actually delivers, although I have to say the game is extremely addictive.

The music is absolutely fantastic, another masterpiece from composer, Rob Hubbard. This alone is worth two quid and twelve minutes loading time!

I also like the amount of depth Firebird has managed to get into the title screen.

The game itself is a fairly simple idea, and has been used before, in Xevious.

You fly over the top of an asteroid, your task being to blow up as many installations as possible.

At first sight you begin to wonder what it is you are supposed to be shooting at, but after a few minutes playing you soon learn.

To hinder your progress a few squadrons of enemy fighters are thrown up. Some of these you can shoot down, some you can't.

They don't actually shoot at you, but colliding with them, or with mines laid by them, will deplete your energy supply.

When you reach the end of each level of the game you are assaulted, from all directions, by hordes of enemy ships and mines.

Dodge these or shoot them as best you can, as you could still run out of energy before the end of the session.

You can move around the screen, but this doesn't help you much as the enemy ships are very fast – and anyway you have to destroy the ground bases to accumulate a good score.

Use a joystick with an automatic firing capability so that you can spend more time dodging enemy ships and mines.

If you want to pause the game, the Select key will pause, and the Start key release it. This isn't mentioned in the instructions.

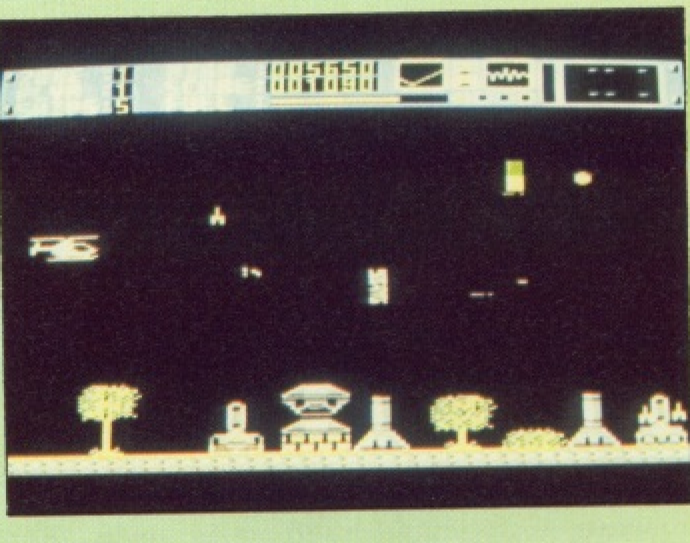
This would have been a great game had it been done in 3D, like the cover. Sadly it's in 2D, so Warhawk must have some kind of terrain following radar, as you can't crash into buildings, although your missiles can blow up both ground bases and enemy ships.

Altogether an extremely addictive arcade game.

Rob Anthony

Sound	10
Graphics	6
Playability	6
Value for money	10
Overall	8

Rat's flying high



Program: Laser Hawk
Price: £7.95 (cassette), £9.95 (disc)
Supplier: Red Rat, 11 Fennel Street, Manchester M4 3DU.
Tel: 061-835 1055

MY initial reaction to the first screen of Laser Hawk was that here was another horizontally scrolling blast-anything-that-moves type of game.

And indeed it is, but with many simple refinements and thoughtful touches that had me coming back for just one more go – and then some.

Flying your chopper through five increasingly difficult zones, you avoid or destroy various robo-ships, missile launching silos, parked space ships, buildings and volcanoes – while keeping an eye on your fuel level.

Progress through the zone is charted via a small radar screen in the top corner.

As the zones become more difficult and the general level of activity intensifies, you will encounter meteors, guided missiles, laser cannons and high flying bombers.

If the pace gets too hot (and it certainly gets pretty warm in the higher levels) you could try keeping your finger on the spacebar.

If you survive to the end of the zone, you are given an extra life and the opportunity to earn valuable bonus points by destroying a Commodore, BBC, or Sinclair monolith on the ground!

When you have completed the five zones you are treated to a gratifying reward screen before progressing to the next, more difficult level.

The graphics, scrolling and sound are good throughout and contribute to the game's appeal and playability.

Each zone layout is slightly different and appears to be randomly generated, altering every time a game is started.

If your chopper gets chopped, you restart where you left off, not at the beginning.

And when you get the hang of things, you can choose to start at any one of the four levels of difficulty available. Just two examples of Red Rat's attention to game-playing detail.

I must say, after my slightly sceptical start, the more I played Laser Hawk the more I liked it.

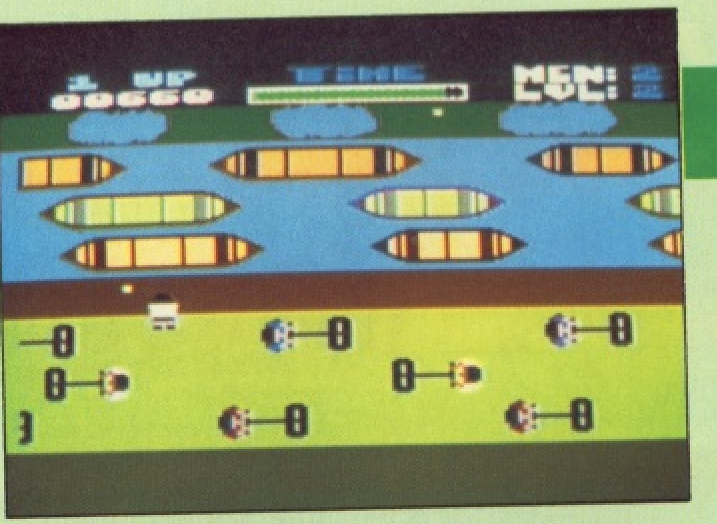
While the game concept is perhaps getting a little long in the tooth, Red Rat has tweaked it nicely, treating it in a thoughtful and refreshing way. What it may lack in originality it makes up for in finesse.

A very entertaining game and good value.

Niels Reynolds

Sound	7
Graphics	8
Playability	9
Value for money	8
Overall	8

Old magic is there



Program: Preppie
Price: £2.99
Supplier: Americana c/o US Gold, Units 2 & 3, Holford Way, Holford, Birmingham B6 7AX.
Tel: 021-356 3388

CAST your mind back to games of long ago. Remember an addictive piece of nonsense called Frogger?

You know, the one where a frog had to jump across roads, rivers and such like, desperately trying to avoid getting squished by lorries or croaked by crocodiles.

Thought you might. Preppie is a Frogger hybrid and has itself been around for quite a bit. An award winner in its day, Preppie has you retrieving golf balls through 10 levels of difficulty.

Preppie is a small, slow-gaited chap who starts off in a safe zone at the bottom of the screen.

He must cross a fairway and a river to retrieve each golf ball – and must then return it to the safety zone from whence he came.

Whizzing along the three-lane fairway are golf-carts, lawn-mowers and bulldozers, all of which can bring sudden squelching to Preppie if he gets in their way.

When struck by one of these vehicles, Preppie flattens and spreads out, just like a piece of dough under a rolling pin.

Once safely over, Preppie finds himself on a traffic-free river bank. At the higher levels, a huge frog comes galumphing along this bank bent on crushing anyone in its path. (Frogger's revenge?)

Preppie must now traverse the river, also three-laned. He accomplishes this by leaping on passing logs, canoes and alligators, hopscotching his way to the far bank.

Just to make life more stimulating, the gators' mouths open at random and a time limit ebbs remorselessly away.

The higher the level, the more traffic there is and the faster it moves.

The game can be played with one or two players and can be started at any level but the last.

The animation and graphics are simple but attractive. Jolly musical effects add to the fun.

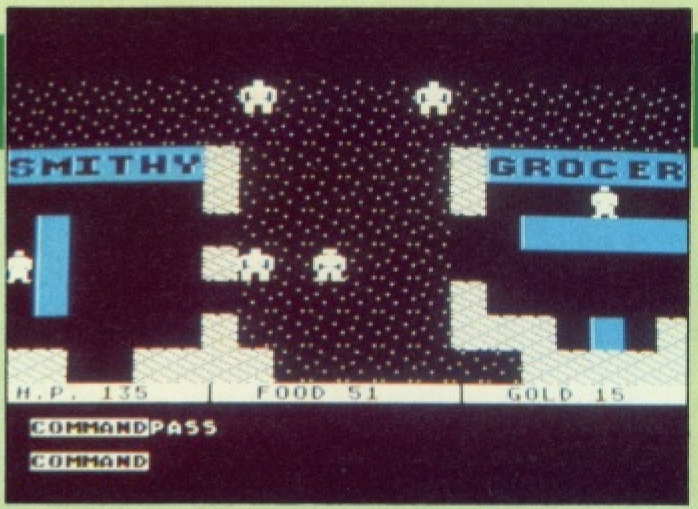
Preppie is an old game yet it still has that magical pulling power that so many games seem to lack today.

A classic Atari program, it's addictive fun and well worth the price.

Bob Chapell

Sound	8
Graphics	7
Playability	9
Value for money	9
Overall	8

Ageing dragons



Program: Questron
Price: £9.95 (cassette) £14.95 (disc)
Supplier: Strategic Simulations c/o US Gold, Units 2 & 3, Holford Way, Holford, Birmingham B6 7AX.
Tel: 021-356 3388

THIS latest release from the US Gold stable is another Dungeons and Dragons type of fantasy simulation in which you trek across foreign lands in search of fame, fighting and fortune.

Questron is a rather old game, circa 1984, and shows its age.

As a lowly serf, it has fallen to you to save the Questron Empire from Mantor, a renegade sorcerer. Why choose you?

You should know better than to ask: "Perhaps you can succeed and recover the stolen Book of Evil magic where armies before you have failed". They must think you were born yesterday.

And they're right! Here you are, with nothing more than a suit of rawhide armour to your name, trekking across the countryside.

Well, to be precise, it's the countryside that does the moving – and pretty jerky it is too. You simply stay put in the middle of the screen.

You can rob someone, take an inventory, speak to others and board or leave transportation – horses, ships and so on.

You can also hold an item, use it, climb (ladders, ropes, and the like), examine objects, unlock items and more.

In your travels you'll certainly come across many randomly generated monsters.

The creatures tend to block your way but you can try to walk around them. However, since such passive resistance in this game usually results in your becoming severely damaged, you'll probably decide to fight or use magic on these obstructionists.

Towns, cathedrals, castles and dungeons are scattered throughout the realm and are there for the exploring.

On entry to one of these, the screen will change to display a large scale interior. Dungeons are shown as 3D type mazes.

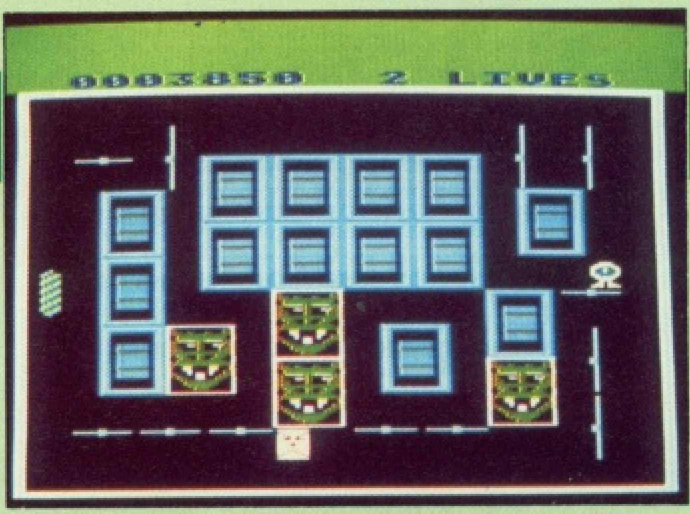
The graphics are primitive and the monsters make rather too many appearances for my taste. Even so, there's a lot of fun to be had.

If you're looking for an enjoyable fantasy game and don't care too much about graphics then Questron should fit the bill.

Bob Chappell

Sound	*5*
Graphics	*5*
Playability	*8*
Value for money	*7*
Overall	*7*

Useful collection



Program: Smash Hits Volume 6
Price: £9.95 (cassette) £14.95 (disc)
Supplier: English Software, 1 North Parade, Parsonage Gardens, Manchester M60 1BX
Tel: 061-835 1358

COMPILATION mania continues apace and shows no signs of letting up – surely the suppliers are going to run out of old software to plunder before very much longer?

This one, the sixth in this particular series, contains four games: Elektraglide and Timeslip from English Software and Fort Apocalypse and Drelbs from US Gold.

For those who have never played it or read the reviews in *Atari User*, suffice it to say that Elektraglide is a Pole Position variant where the objective is to dodge strange objects and race against time. A fast, tough game.

Timeslip is, unusually, a triple-split-screen game in which you must seek and destroy a number of orbs against the clock. Three horizontal screens each hold a game in miniature.

The top one is a Scramble hybrid in which you pilot a spaceship over various terrain, shooting ememy craft, missiles and orbs.

The middle screen is a Jet Boot Jack look-alike. You must jet around the caverns, dodging danger and collecting orbs.

The lowest screen has you piloting a sub through hostile waters, torpedoing all the orbs you encounter.

An unusual game but the narrowness of each section's playing area makes it hard on the eyes.

Drelbs is another strange game. The basic idea is to whiz around a two-dimensional grid of partially completed squares, opening and closing gates as you go.

Each gate forms one side of a square. As gates are flipped, squares are completed and start to pulsate.

Chasing you are the trollaboars who can also flip gates but cannot create squares. They can be temporarily trapped inside a square.

Finally, Fort Apocalypse, the best in the collection in my book – a game of furious action accompanied by thunderous sound effects.

You pilot a helicopter through a series of levels and chambers, rescuing prisoners and transporting them to safety.

It's sheer pulse-pounding action from beginning to end and a must for all who like their games noisy.

Overall, a good collection which is sure to keep you amused until the next one.

Bob Chappell

Sound	*8*
Graphics	*7*
Playability	*7*
Value for money	*8*
Overall	*8*

Computers

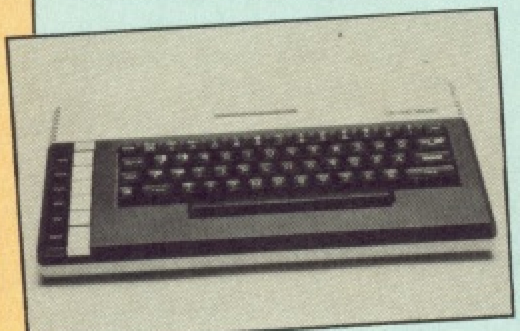
The Atari 8 bit computer range was first seen in the UK in the summer of 1980. It consists of a number of machines – most of which are no longer in production.

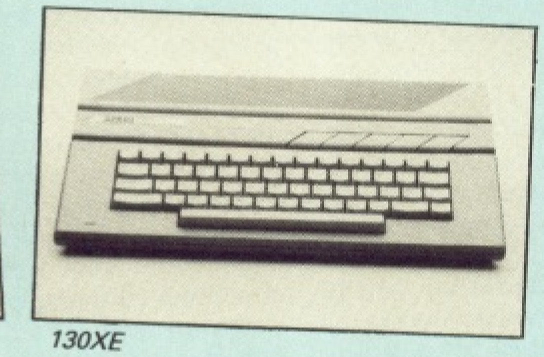
The original computers were the expandable 8k Atari 800 (first sold in the UK as a 16k machine) and the 16k Atari 400.

The 800 was designed to be upgradeable to 48k, while the 400 was meant to be unexpandable – though this didn't stop people from soldering in boards to give it 48k of memory.

In 1983 these machines were replaced by the 16k 600XL and the 64k 800XL, and more recently still by the 128k 130XE.

In the States there were also the 1200XL, 1400XL and 1450XLD machines, but these were soon abandoned in favour of the newer 600XL and 800XL.


800XL


130XE

8-B
ADD-

ANDRÉ WILLEY surve th

Printers

After a disc drive, the next item you will probably require for your system will be a printer.

There are many types available – thermal printers which make their letters up from tiny dots on special heat sensitive paper, and dot-matrix printers which do the same but which work with any type of paper.

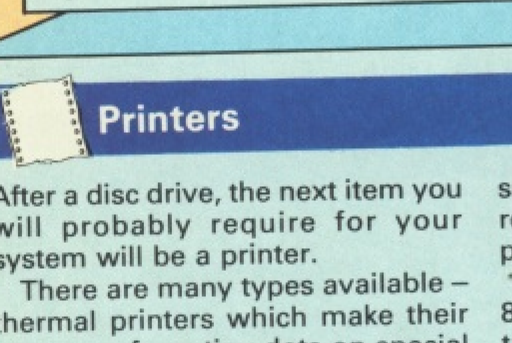
Or there are daisywheel printers which print high quality text in a similar way to a typewriter, and plotters which draw text with a pen and have the added advantage of being able to draw multicoloured graphics.

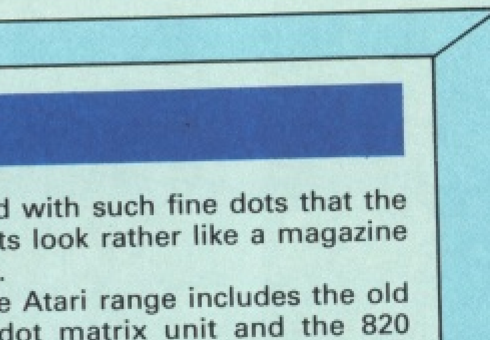
And there's the newest – and most expensive – type which uses a laser beam to print text at very high speed with such fine dots that the results look rather like a magazine page.

The Atari range includes the old 825 dot matrix unit and the 820 thermal printer, and the more recent 1020 plotter and 1025, 1029 and XMM801 dot matrix units.

You should also consider buying a non-Atari printer – such as an Epson or Brother – but you will need a Centronics interface unit to connect it to your computer.

These come in many shapes and sizes, but the most popular is the Atari 850 unit which also features four RS232 ports. Alternatively you could buy one of the many printer-only devices advertised in *Atari User*.


Brother HR-5


Epson RX80

Storage devices

Once you've written or typed in a program from a magazine, you will want to store it for later use.

Most first-time users use a tape recorder, in which case you need one specifically designed for the Atari – an ordinary recorder will not plug straight in.

The first recorder available was the 410 unit, which went through a number of design changes during its long lifetime.

Next came the 1010 – whose buttons kept breaking. Then we very briefly saw what was probably the best of the lot, the XC11, which was immediately superseded by the less attractive XC12.

The only other alternative is to use a special device – such as the Cassadaptor – which will allow you to connect your computer to an ordinary tape deck.

If you do decide to do this don't forget to use a stereo recorder, as

-BIT
D-ONS

surveys the peripheral scene

the Atari tape system uses two tracks, one for audio and the other for data.

More advanced users may find a disc drive is a better way to store programs. Discs are anything up to 50 times faster than cassette and are far more reliable.

The 8 bit machines use 5.25in discs and the first drive available over here was the 810 unit which could store up to 90k of data and programs per disc.

More recently the 1050 drive has been released with a capacity of 130k – or 180k if you add on one of the many double density modifications, such as the US Doubler chip.

Atari now plans to bring out a 3.5in drive, but this will cause a lot of problems as you won't be able to run any of your old software unless it has been first converted to the new format.

Communications

Now you've got your own system set up, how about getting in touch with other computers? To do this you will need two things – a modem and an RS232 interface of some sort.

For the latter you are limited at present to a couple of units, the best being the 850 unit. You could also consider getting Miracle Technolgy's Datatari cable which will do a similar job – assuming you want to use less than perfect software.

As for modems, the sky is your limit! There is a huge selection available and you should choose one which best suits your needs.

Most people use a slow 300 baud modem, such as the WS2000, but – if you can afford the extra cash – a 1200 baud unit (V22) will speed up your communications tremendously.

You will also need some software, such as the Mini Office II communications program, or one of the many others available.



Prism VTX 5000 modem

Accessories

Other than the main items we have described there are many other things you may want to buy for your computer.

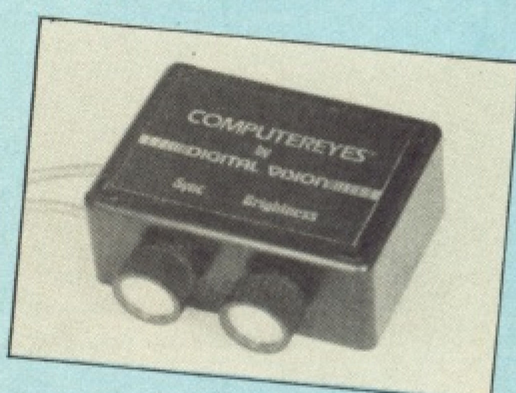
Most people have a joystick or two for playing games, but you can also use paddles for some games or even a trackball, which can be more fun.

For budding artists there are such things as touch tablets and light pens, both of which are far superior to using a joystick to draw with. These mostly come with their own drawing software.

Instead of using a normal televison set with your computer you could try using a monitor, which will vastly improve the clarity of your picture – but these can be expensive.

Other peripherals available includê the ComputerEyes video digitizer which we looked at a couple of issues ago, a real-time clock cartridge similar to that from ICD, hard disc units such as the Supra 10Mb unit and the new XEP-80 80 column module from Atari.





Above: ComputerEyes video digitiser
Left: Quickshot 2 Turbo joystick

BYTEBACK

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MÖLEHÜNTER



By
KELVIN LUSH

GET out your spade and head for the garden in this fast and furious one player game which places you in the role of an angry gardener on the trail of an elusive mole who is destroying his garden.

Played on a 5 by 5 multi-coloured grid, the object is to catch the mole. The trouble is, being a mole, he's rather difficult to locate. All you have to go on is the colour of the last few squares he visited.

Using the joystick, you move a small cursor across the play grid and press the button when you think that you are in the same square as the mole.

And to make things more difficult, you've only a limited time to find the beastie in. An ever-shrinking bar at the base of the screen shows the time remaining.

Then, if you manage to find the mole in time, you move up to a level where the action is faster and you have less time to complete your task. At the end of the game the level that you reached is displayed and you can start again by pressing the joystick button.

The program contains many comments in the form of REM statements, so that you can follow the flow easily. The screen display and variables are set up in lines 50 to 180.

Line 190 branches to subroutines which make up the main loop of the program. Lines 200 and 210 contain data for the colours used in the grid.

Difficulty is set in line 270 and can be altered by changing the constant at the end of the FOR statement.

Once you have typed in the listing don't forget to save a copy to disc or cassette before you run it.

If you have any problems typing it in, don't forget to try using our checksum program Get It Right! Alternatively you can download Molehunter from MicroLink, where all our monthly games and other programs are to be found. ■

```
10 REM MOLE HUNTER
20 REM BY KELVIN LUSH
30 REM (C) ATARI USER JANUARY 1986
40 GOSUB 700:REM INSTRUCTIONS
50 CLR :LEVEL=10:DIM CO(4)
60 GRAPHICS 10
70 RESTORE 200:FOR A=705 TO 712
80 READ B:POKE A,B:NEXT A
90 FOR A=15 TO 40 STEP 5
100 FOR B=10 TO 110 STEP 20
110 READ CO:COLOR CO
120 FOR C=A TO A+4
130 PLOT C,B:DRAWTO C,B+19
140 NEXT C
150 NEXT B
160 NEXT A
170 COLOR 6:FOR TIME=10 TO 50:SOUND 0,
100-TIME*2,10,10:PLOT TIME,185:DRAWTO
TIME,191:NEXT TIME:SOUND 0,0,0,0
180 X=27:Y=58:X1=5*(INT(RND(0)*6))+17:
Y1=20*(INT(RND(0)*6))+17:FOR A=1 TO 4:
CO(A)=0:NEXT A:GOSUB 400
190 GOSUB 260:GOSUB 400:POKE 77,0:GOTO
 190
200 DATA 58,135,198,51,39,28,126,85
210 DATA 7,8,1,6,5,2,2,5,4,3,6,7,8,3,2
,7,4,1,1,4,6,5,8,3,3,7,8,1,2,5,5,2,3,4
,1,6
220 REM REDUCE TIME
230 COLOR 0:PLOT TIME,185:DRAWTO TIME,
191:TIME=TIME-1
240 IF TIME>9 THEN RETURN
250 POP :GOTO 540:REM TOO SLOW
260 REM MOVE MAN
270 FOR A=0 TO LEVEL-5
280 ST=STICK(0):LOCATE X,Y-1,CO:COLOR
CO:PLOT X,Y:DRAWTO X,Y+4
290 X=X+5*(ST=6)+5*(ST=7)+5*(ST=5)-5*(
ST=10)-5*(ST=11)-5*(ST=9)
300 Y=Y+20*(ST=9)+20*(ST=13)+20*(ST=5)
-20*(ST=10)-20*(ST=14)-20*(ST=6)
310 IF X<17 THEN X=17
320 IF X>42 THEN X=42
330 IF Y<18 THEN Y=18
340 IF Y>118 THEN Y=118
350 COLOR 0:PLOT X,Y:DRAWTO X,Y+4
360 FOR B=1 TO LEVEL*6-15:NEXT B
370 IF STRIG(0)=1 THEN NEXT A:RETURN
380 IF X1=X AND Y1+1=Y THEN POP :POP :
GOTO 610:REM CORRECT
390 SOUND 0,200,12,8:FOR B=1 TO 5:GOSU
B 220:NEXT B:SOUND 0,0,0,0:NEXT A:RETU
RN
400 REM MOVE MOLE
410 A=RND(0):SOUND 0,1,6,6
420 IF A<0.25 THEN X1=X1-5:GOTO 460
430 IF A<0.5 THEN X1=X1+5:GOTO 460
440 IF A<0.75 THEN Y1=Y1-20:GOTO 460
450 Y1=Y1+20
460 IF X1<17 THEN X1=22
470 IF X1>42 THEN X1=37
480 IF Y1<17 THEN Y1=37
490 IF Y1>117 THEN Y1=97
500 LOCATE X1,Y1,A:FOR B=0 TO 3:CO(B)=
CO(B+1):NEXT B:CO(4)=A:SOUND 0,0,0,0
510 A=50:FOR B=4 TO 0 STEP -1:COLOR CO
(B):PLOT A,60:DRAWTO A,72
520 PLOT A+1,60:DRAWTO A+1,72:PLOT A+2
,60:DRAWTO A+2,72
530 A=A+3:NEXT B:GOTO 220:REM REDUCE T
```

```
IME
540 REM OUT OF TIME
550 GRAPHICS 2+16:PRINT #6:PRINT #6:PR
INT #6;"      out of time":PRINT #6;"
   ON LEVEL ";11-LEVEL:POSITION 4,6
560 PRINT #6;"PRESS fire TO          TR
Y AGAIN"
570 FOR A=1 TO 250 STEP 2:SOUND 0,A,6,
8:SOUND 1,251-A,10,4:NEXT A
580 SOUND 0,0,0,0:SOUND 1,0,0,0
590 IF STRIG(0)=1 THEN GOTO 590
600 GOTO 50
610 REM CORRECT GUESS
620 LEVEL=LEVEL-1:LOCATE X,Y-1,CO:COLO
R CO:PLOT X,Y:DRAWTO X,Y+4
630 FOR A=1 TO 7:B=PEEK(705):FOR C=705
 TO 711:SOUND 1,50,10,8:POKE C,PEEK(C+
1):SOUND 1,0,0,0:NEXT C:POKE 712,B
640 NEXT A:COLOR 0:FOR A=185 TO 191:PL
OT 10,A:DRAWTO 50,A:NEXT A:IF LEVEL>1
THEN GOTO 170
650 GRAPHICS 2+16:FOR A=1 TO 120:PRINT
 #6;"/\";:NEXT A:POSITION 0,0
660 GRAPHICS 50:PRINT #6:PRINT #6:PRIN
T #6;"      well done      "
670 PRINT #6:PRINT #6;"    PRESS ANY K
EY    ":PRINT #6:PRINT #6:PRINT #6;"
 to try again    ":POKE 764,255
680 IF PEEK(764)=255 THEN 680
690 GOTO 50
700 REM INSTRUCTIONS
710 PRINT "K":SETCOLOR 2,2,2:SETCOLOR
1,0,8:SETCOLOR 4,2,2
720 POKE 752,1:PRINT "        MOLEHUNTE
R INSTRUCTIONS"
730 PRINT
740 PRINT
750 PRINT
760 PRINT " THE OBJECT IS TO CATCH THE
 'MOLE'":PRINT " WHICH IS RUNNING BENE
ATH THE TRAP."
770 PRINT " THE MOLE CAN'T MOVE DIAGON
ALLY AND"
780 PRINT " YOU CAN'T SEE IT, ONLY THE
 COLOUR":PRINT " OF THE LAST FIVE SQUA
RES IT WAS"
790 PRINT " UNDER, WITH THE PRESENT SQ
UARE ON":PRINT " THE LEFT."
800 PRINT
810 PRINT " WHEN YOU THINK YOU ARE ON
THE SQUARE":PRINT " THE MOLE IS UNDER,
 PRESS FIRE."
820 PRINT
830 PRINT " IF YOU ARE RIGHT YOU MOVE
ONTO THE":PRINT " NEXT LEVEL, BUT IF Y
OU ARE WRONG"
840 PRINT " YOU LOSE VALUABLE TIME.":P
RINT
850 PRINT :PRINT "        PRESS FIRE T
O START"
860 IF STRIG(0)=1 THEN 860
870 RETURN
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	3009	20	3578	30	5583
40	9642	50	4202	60	2136
70	5306	80	4320	90	3653
100	3891	110	3154	120	2599
130	4365	140	1333	150	1331
160	1329	170	19780	180	17219
190	7300	200	4907	210	11259
220	7069	230	9774	240	4483
250	8094	260	4929	270	3421
280	11429	290	9949	300	10696
310	3163	320	3147	330	3179
340	3393	350	5998	360	5247
370	6168	380	13384	390	14267
400	5739	410	3937	420	5628
430	5246	440	5780	450	1523
460	3378	470	3400	480	3413
490	3775	500	12378	510	11023
520	9393	530	11360	540	6995
550	24580	560	15865	570	11011
580	4713	590	4726	600	1424
610	8147	620	12353	630	18845
640	15959	650	11925	660	15171
670	24376	680	4374	690	1424
700	7721	710	10381	720	18066
730	1268	740	1268	750	1268
760	17206	770	8321	780	16222
790	12084	800	1268	810	16482
820	1268	830	16691	840	7973
850	9120	860	3766	870	1498

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1 How many miles is the Earth from the sun?
2 What are the names of the satellites which orbit Mars?
3 Which planet is furthest away from the sun?
4 How many planets are there in the solar system?
5 Who was the first man to walk on the moon?



Cut out or photocopy the entry form and send it to the address below to arrive no later than January 31, 1987.

Answers

1 ______________________

2 ______________________

3 ______________________

4 ______________________

5 ______________________

Name ______________________

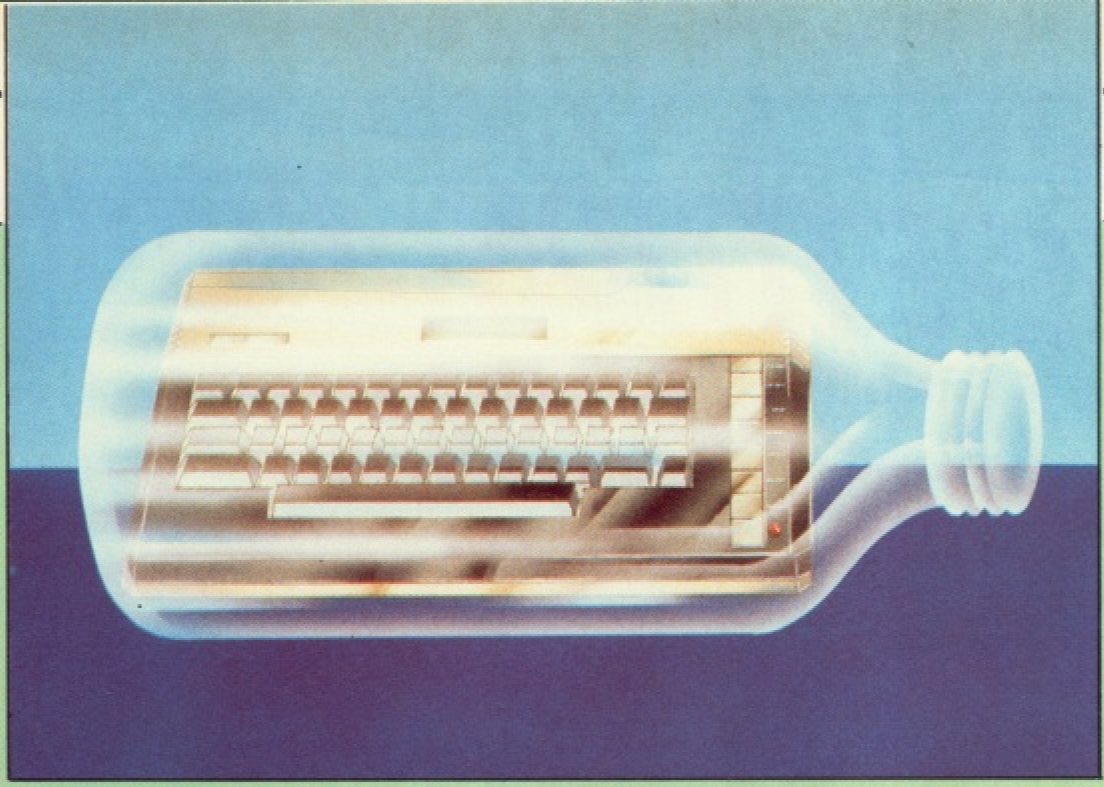
Address ______________________

____

Postcode ______________ Age ______

Send to:

Sunstar Competition, Atari User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.



How to squeeze a quart into a pint glass

STEPHEN WILLIAMSON presents a simple way to compress data – and so improve your micro's use of memory

I AM a great fan of computer text adventure games. A good adventure gives you a sense of being involved in a real life situation. However some of them lack atmosphere, often because of short location descriptions.

Compare the following two sentences:

"You are in an underground cave".

"You are in a large underground cavern. Stalactites cling to the ceiling and you hear the far-off sounds of a fast moving river".

The first statement gives only a brief factual description. The second adds descriptive detail to stimulate the imagination – but of course it would take up much more memory space if stored in a computer.

And that is the reason why many adventures stick to short location descriptions – simply to save memory.

Conventional storage methods allocate one byte of computer memory to each character of text. In a Basic program each character in quotation marks after a PRINT statement takes up 1 byte of ram.

If an adventure has 200 locations and each location is 120 letters or 3 screen lines long on average, then the amount of ram space needed, using normal storage methods, is 24,000 bytes (200 ×120).

Add more detail by increasing the descriptions to an average of 200 letters or 5 screen lines and this jumps to 40,000 bytes which means that in a 64k computer there is no room left in ram for the program that actually runs the adventure!

So if you are set on writing a long and detailed text adventure, how can you get around this problem?

You could run off and buy the one megabyte 1040STF with its 1024k ram which should be more than enough memory for the ambitious adventure games writer. This solution works – but is expensive.

Another solution is Infocom's technique. Their text adventures store location descriptions on disc and access an individual location when needed. In this way only one location description need be in ram at any one time.

This works fine for disc drive owners but is impractical for cassette users handicapped as they are by sequential filing and long delays in loading data.

Another method of creating long adventures is to write the program in sections. On my old limited memory VIC-20 computer I played an adventure by puzzling my way through part 1 then turning the tape over to enter part 2, hoping that I had not left a much-needed object behind in Part 1.

There is another way though. I am currently playing Level 9's Worm In Paradise adventure which has over 200 locations, graphics and a large amount of text but uses none of the techniques discussed. So how does it manage to store so much information?

In common with most good adventure writers, Level 9 uses a technique known as data compression: Text is coded in less memory bytes than the number of letters in the original text. Level 9 boasts that Worm in Paradise achieves over 50 per cent text compression – which is like storing a quart in a pint glass!

In other words, data compression is a method of squeezing data so that it can be economically stored in memory to be later stretched again to its original form.

How is this done? There are several standard methods, and the program that accompanies this article demonstrates one of the simpler ways.

Level 9 obviously uses a much more sophisticated way of reaching the 50 per cent figure, but probably includes techniques similar to those shown in the program.

In most sections of text you will find combinations of letters that occur more frequently than others – and this is the secret of data compression.

Take the sentence:

"You see a greedy green dragon".

The letters **ee** appear three times – in see, greedy and in green. If we assign a one character code to represent the letter combination **ee,** say @, then the sentence can be encoded to read:

"You s@ a gr@dy gr@n dragon".

Alternatively we could take the four letter combination **gree** and in a similar fashion encode the text to read:

"You see a @dy @n dragon".

The full version of the sentence is, including spaces, 29 letters long, the second 26 and the third 23 – or about 20 per cent shorter than the original sentence.

If we know what letter combination the @ symbol stands for then decoding the short sentence to arrive back at the original meaning is simple.

This process of analysing text to find frequently occurring letter combinations, encoding the text with single symbols then translating the coded version back to its original form is

essentially what the Text Compressor program does.

The program first gives you the option of entering text or loading previously stored text from cassette or disc. It expects any text loaded to have been originally compressed and saved using the program.

Lines 250 to 360 take care of inputting text – either by adding on to previously created text or by entering entirely new text. Because the encoding system uses the inverse characters these must not be used as part of the text.

The only editing key that can be used is Delete Backspace. The program cannot accept the cursor direction keys.

As each character is input, the program builds up the string *TEXT$*.The maximum length of the string/text is 2000 which is set in line 10.

If you want to analyse a larger string then line 10 must be changed and the maximum length of the string *PRESS$* altered in line 20. If you are using a 16k Atari then you may need to reduce these figures.

If you press the Escape key then control of the program passes to the text analysis section – lines 380 to 540. The program starts at the beginning of *TEXT$* and assigns the variable *L1* to the first letter, *L2* to the second and *L3* to the third then, using a machine code routine (line 510) it finds out if the combination of *L1* (the first letter), *L2* and *L3* occurs anywhere else in the text string.

If this occurs more than three times then the program passes to lines 1110 to 1170 which builds up a string variable *(CODE$)* that contains all the three letter combinations.

Line 1140 uses the machine code routine that was used in line 510 to check that the same three letter combination has not already been included in *CODE$*.

The program can handle a maximum of 92 such combinations. If you want to include combinations that only occur more than three times then the variable *FREQ* can be changed in line 170.

The program continues checking through the text string *TEXT$*, taking the second, third and fourth letters as *L1*, *L2* and *L3* then the third, fourth and fifth letters and so on until the text has been fully analysed.

Once all the combinations have been found then lines 560 to 600 assign replacement inverse characters (Atascii characters 159 to 251) to each.

Not all these codes will necessarily be used in the encoding process. You may for example find the letter combinations **th** (space+t+h) as well as **the** which are both found when the word **the** occurs in the middle of a sentence. The program will choose one of the combinations and ignore the other.

The three letter combinations and their inverse character counterparts are displayed on the screen. A line indicates a space. Note that for the purposes of this program a space is treated as a character when counting or analysing text.

The next stage is to code the text into its compressed form – lines 630 to 780. Each combination is checked for a match in the text string *TEXT$* and, if made, the inverse character code is inserted at the appropriate place in *TEXT$*.

Then a compressed version *(PRESS$)* is compiled which copies the string *TEXT$*, but closes up the gaps left by replacing the three letters with single characters (lines 730 to 760).

After the text has been encoded the compressed version *(PRESS$)* is then printed to the screen and an analysis made to show how much memory, in bytes, has been saved using this technique.

The compressed text can then be saved to tape or disc (lines 1250 to 1460) using the PUT command to record each character.

As well as the compressed string being saved, the string *CODE1$*, a list of all the 3 letter codes used to encode the string, is saved to cassette or disc so it can be used as a translation table to convert the compressed data to its original form.

When calculating the percentage of memory saved, the program has not taken the length of *CODE1$* into account. This means that for short sections of text the program is not efficient – but it still serves as a useful demonstration of compression techniques.

Lines 900 to 1100 contain the routine for reassembling the saved data and displaying the full text to the screen. This routine could be adapted for inclusion in your own programs to load compressed text.

When using discs make sure that you have a formatted disc ready before pressing D for the disc save option. The file will be saved under the name TEXT. This can be altered by changing line 1300 and line 960 when loading text.

If using cassette make sure that Play and Record are pressed and that there is a data cassette in the recorder before pressing C for the cassette save option. Press play before initiating the cassette load section.

The program is not particularly fast due to the large amount of processing used – text containing hundreds of characters can take several minutes to analyse. The decoding process is much quicker.

To speed things up I have included a machine code analysis routine to search the text string for frequently occurring letter combinations. As a help to machine code programmers Program II is a disassembled version of this routine.

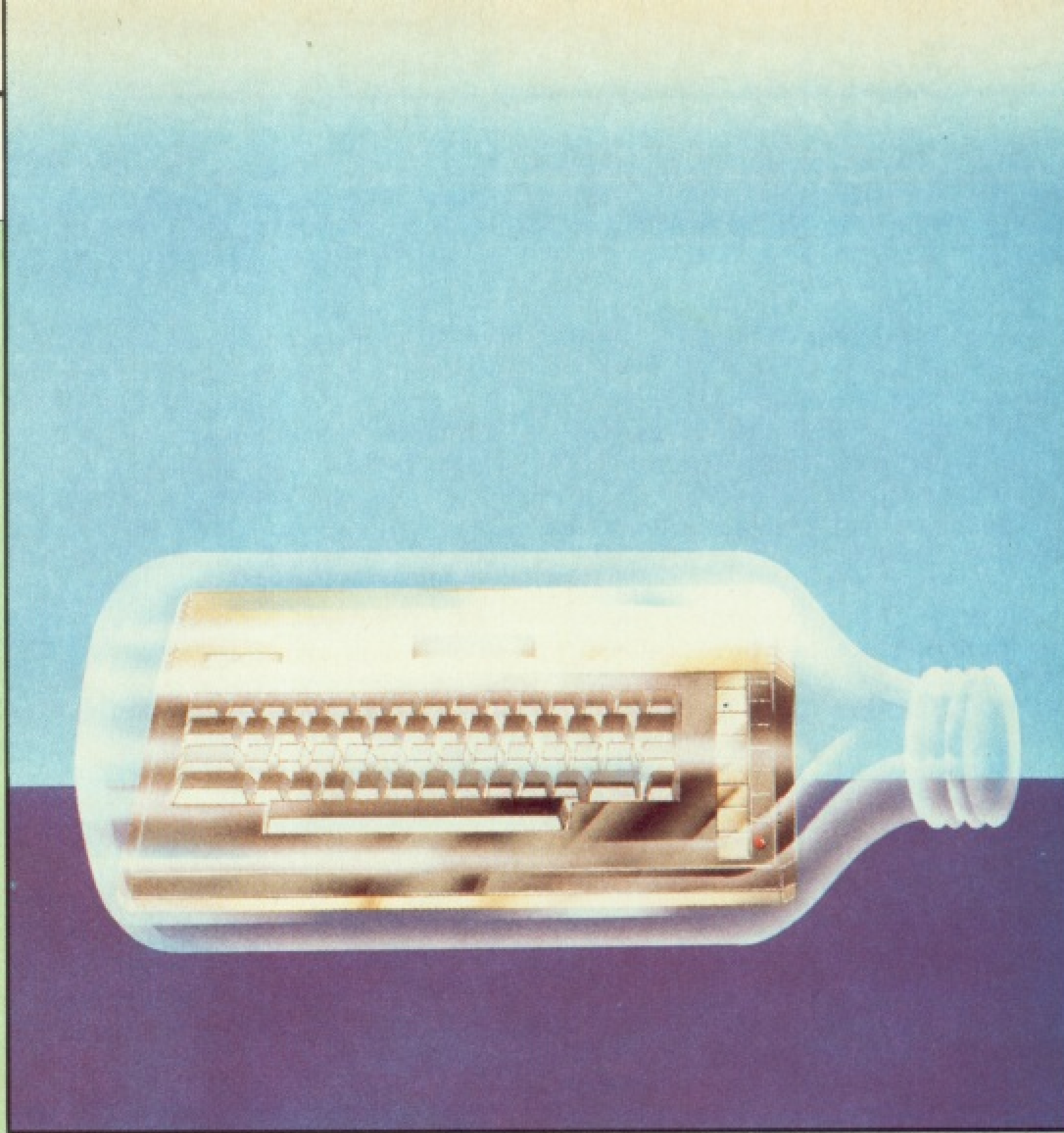


The program represents a simplified form of data compression. To achieve a better memory saving then a program that not only searches for three letter combinations but four, five or more letter combinations is needed.

The program does not sort the three letter codes into order of frequency. To do so would make further savings.

For example you may find that, as in our previous example, the text analysis finds both **the** and **th** (space+t+h) and that some parts of the text could be encoded with either code. It is more efficient to check for the code that appears more often first.

Once you have found the most frequently occurring combinations, further savings can be made by carefully editing the text to include more of these combinations. No doubt you'll have your own ideas on improving compressions. Why not write in and let us know? ■



Program I

```
10 DIM TEXT$(2000),CODE$(300),CODE1$(300)
20 DIM PRESS$(2000),CHAR$(1),R$(3),R(92)
30 POKE 622,255:REM SWITCH ON FINE SCROLL
40 GRAPHICS 0:SETCOLOR 2,12,0:POKE 82,0:?
50 ? "    TEXT COMPRESSOR    "
60 ? " by Stephen Williamson "
70 ? "    for Atari User.    "
80 ? :? "Data loading...."
90 REM  LOAD M.CODE DATA 
100 FOR N=1536 TO 1622
110 READ A:POKE N,A:NEXT N
120 FOR N=1650 TO 1660
130 READ A:POKE N,A:NEXT N
140 REM  CLEAR STRINGS 
150 FOR N=1 TO 300:CODE$(N,N)=" ":NEXT N
160 FOR N=0 TO 2000:POKE ADR(TEXT$)+N,0:NEXT N
170 FREQ=3:CODE$="":CODE1$=""
180 TEXT$="":PRESS$="":CHAR$=""
190 ? CHR$(125)
200 ? " PRESS START TO ENTER TEXT "
210 ? " PRESS SELECT TO LOAD TEXT "
220 IF PEEK(53279)=6 THEN GOTO 250
230 IF PEEK(53279)=5 THEN GOSUB 900:GOTO 270
240 GOTO 220
250 POKE 82,0:? CHR$(125)
260 ? " ENTER TEXT - PRESS ESC TO ANALYSE TEXT "
270 CHAR=LEN(TEXT$)
280 OPEN #1,4,0,"K"
290 GET #1,B
300 GOSUB 1510
310 CHAR=CHAR+1
```




```
320 IF B=27 THEN CLOSE #1:GOTO 370
330 IF B=126 THEN ? CHR$(B);:CHAR=CHAR-2:GOTO 290
340 CHAR$=CHR$(B):? CHAR$;
350 TEXT$(CHAR,CHAR)=CHAR$
360 GOTO 290
370 ? :? " NO. OF CHARACTERS  ";LEN(TEXT$);" "
380 ? " ANALYSING TEXT..... "
390 CURSOR=PEEK(84):IF CURSOR=23 THEN CURSOR=22
400 LENGTH=LEN(TEXT$)
410 FOR N=1 TO LENGTH:IF TEXT$(N,N)=" " THEN TEXT$(N,N)=CHR$(95)
420 NEXT N
430 FOR N=1 TO LEN(TEXT$)-3
440 POSITION 0,CURSOR:? " ";N+3;" ";
450 R$=TEXT$(N,N+2)
460 L1=ASC(TEXT$(N,N))
470 L2=ASC(TEXT$(N+1,N+1))
480 L3=ASC(TEXT$(N+2,N+2))
490 LENGTH=LEN(TEXT$)
500 POKE 209,0
510 Z=USR(1536,ADR(TEXT$),L1,L2,L3,LENGTH)
520 OCC=PEEK(209)
530 IF OCC>=FREQ THEN GOSUB 1110
540 NEXT N
550 ? :IF LEN(CODE$)<3 THEN ? " NO CODES FOUND ":GOTO 1470
560 FOR N=1 TO LEN(CODE$)-2 STEP 3
570 ? CHR$(160+INT(N/3));"=";CODE$(N,N+2);" ";
580 ? R(INT(1+(N/3))),:? "▸";:REM PRESS ESC THEN TAB
590 NEXT N
600 ? :? " NO.OF CODES  ";LEN(CODE$)/3
610 ? " PRESS START TO ENCODE TEXT "
620 IF PEEK(53279)<>6 THEN 620
630 ? " ENCODING TEXT "
640 ? :CURSOR=PEEK(84):IF CURSOR=23 THEN CURSOR=22
650 LENGTH=1:CODE1$=""
660 FOR I=1 TO LEN(CODE$) STEP 3
670 POSITION 0,CURSOR:? " CODE NO: ";INT(1+I/3)
680 FOR N=1 TO LEN(TEXT$)-2:? "*←";:REM ESC/CURSOR LEFT
690 IF TEXT$(N,N+2)=CODE$(I,I+2) THEN TEXT$(N,N)=CHR$(160+INT(LENGTH/3)):TEXT$(N+1,N+2)="  ":TEST=1
700 NEXT N:? " ←";:REM ESC/CURSOR LEFT
710 IF TEST=1 THEN CODE1$(LENGTH,LENGTH+2)=CODE$(I,I+2):LENGTH=LENGTH+3:TEST=0
720 NEXT I
730 L=1:FOR N=1 TO LEN(TEXT$)
740 IF ASC(TEXT$(N,N))<>32 THEN PRESS$(L,L)=TEXT$(N,N):L=L+1
750 IF ASC(TEXT$(N,N))=95 THEN PRESS$(L-1,L-1)=" "
760 NEXT N
770 ? " COMPRESSED VERSION - "
780 ? PRESS$:?
790 ? " ORIGINAL TEXT LENGTH  ";LEN(TEXT$)
800 ? " ENCODED TEXT LENGTH   ";LEN(PRESS$)
810 ? " NO. OF CODES USED     ";LEN(CODE1$)/3
820 ? " MEMORY SAVED          ";LEN(TEXT$)-LEN(PRESS$)
830 ? " % SAVING              ";100-LEN(PRESS$)/LEN(TEXT$)*100;"%":?
840 ? :? " PRESS START TO SAVE COMPRESSED TEXT "
850 ? " PRESS OPTION TO ENTER NEW TEXT       "
860 KEY=PEEK(53279)
870 IF KEY=6 THEN GOTO 1250
880 IF KEY=3 THEN ? :? "Initialising .. Please wait...":GOTO 150
890 GOTO 860
900 ? :? " PRESS 'D' FOR DISK LOAD        "
910 ? " PRESS 'C' FOR CASSETTE LOAD "
920 POKE 764,255
930 KEY=PEEK(764)
940 IF KEY<>58 AND KEY<>18 THEN 930
950 IF PEEK(764)=18 THEN OPEN #1,4,0,"C:"
960 IF PEEK(764)=58 THEN OPEN #1,4,0,"D:TEXT"
970 GET #1,LOLENGTH:GET #1,HILENGTH
980 LENGTH=LOLENGTH+256*HILENGTH
990 FOR N=1 TO LENGTH:GET #1,A:CODE$(N,N)=CHR$(A)
1000 NEXT N
1010 GET #1,LOLENGTH:GET #1,HILENGTH
1020 LENGTH=LOLENGTH+256*HILENGTH
1030 ? CHR$(125)
1040 FOR N=1 TO LENGTH:GET #1,A
1050 G=A
```

```
1060 IF G>159 THEN G=G-160:R$=CODE$(1+G*3,3+G*3):? R$;:TEXT$(N,N+2)=R$:N=N+2:GOTO 1090
1070 R$=CHR$(A):? R$;
1080 TEXT$(N,N)=R$
1090 NEXT N
1100 CLOSE #1:POKE 764,255:RETURN
1110 IF LEN(CODE$)>276 THEN RETURN
1120 LENGTH=LEN(CODE$)
1130 POKE 209,0
1140 Z=USR(1536,ADR(CODE$),L1,L2,L3,LENGTH)
1150 IF PEEK(209)=0 THEN CODE$(LEN(CODE$)+1)=R$:R(LEN(CODE$)/3)=OCC
1160 OCC=0
1170 RETURN
1180 REM  MACHINE CODE DATA
1190 DATA 104,104,141,116,6,104,141,115,6,104,104,133,203,104,104,133,204,104,104,133
1200 DATA 205,104,133,207,104,133,206,160,0,162,0,132,208,165,203,32,114,6,200,165
1210 DATA 204,32,114,6,200,165,205,32,114,6,165,209,105,0,133,209,76,31,6,164
1220 DATA 208,200,240,3,76,31,6,228,207,208,1,96,232,160,0,173,116,6,105,1
1230 DATA 141,116,6,76,31,6,96
1240 DATA 217,83,34,240,5,104,104,76,59,6,96
1250 ? :? " SAVE COMPRESSED TEXT "
1260 ? :? " PRESS 'D' FOR DISK SAVE  "
1270 ? " PRESS 'C' FOR CASSETTE SAVE "
1280 POKE 764,255
1290 KEY=PEEK(764)
1300 IF PEEK(764)=58 THEN OPEN #1,8,0,"D:TEXT":GOTO 1330
1310 IF PEEK(764)=18 THEN OPEN #1,8,0,"C:"
1320 IF KEY<>58 AND KEY<>18 THEN 1290
1330 LENGTH=LEN(CODE1$):HILENGTH=INT(LENGTH/256)
1340 LOLENGTH=LENGTH-HILENGTH*256
1350 PUT #1,LOLENGTH:PUT #1,HILENGTH
1360 FOR N=1 TO LENGTH
1370 IF ASC(CODE1$(N,N))=95 THEN CODE1$(N,N)=CHR$(32)
1380 PUT #1,ASC(CODE1$(N,N))
1390 NEXT N
1400 LENGTH=LEN(TEXT$):HILENGTH=INT(LENGTH/256)
1410 LOLENGTH=LENGTH-HILENGTH*256
1420 PUT #1,LOLENGTH:PUT #1,HILENGTH
1430 FOR N=1 TO LEN(PRESS$)
1440 PUT #1,ASC(PRESS$(N,N))
1450 NEXT N
1460 CLOSE #1
1470 ? " PRESS START TO RUN PROGRAM AGAIN "
1480 IF PEEK(53279)=6 THEN RUN
1490 GOTO 1480
1500 REM  DISABLE BREAK
1510 BR=PEEK(16)-128:IF BR<0 THEN RETURN
1520 POKE 16,BR:POKE 53774,BR:RETURN
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	6341	20	6175	30	7444
40	7527	50	13289	60	15603
70	14019	80	5181	90	10616
100	3064	110	4408	120	3076
130	4408	140	9701	150	6426
160	8081	170	4557	180	4894
190	1737	200	16554	210	16532
220	5334	230	7203	240	1616
250	3547	260	24042	270	3027
280	2598	290	1406	300	1950
310	2274	320	5397	330	8265
340	4149	350	4405	360	1637
370	15278	380	11416	390	8493
400	3523	410	11110	420	1355
430	4473	440	6325	450	2672
460	3319	470	3889	480	3895
490	3523	500	1846	510	7485
520	2370	530	5240	540	1355
550	16158	560	5459	570	7040
580	9060	590	1355	600	11519
610	16801	620	4404	630	9177
640	9232	650	3301	660	5347
670	11724	680	9725	690	16593
700	7007	710	14629	720	1345
730	4777	740	10482	750	8048
760	1355	770	13356	780	2029
790	15600	800	15705	810	15234
820	16954	830	18596	840	22966
850	22084	860	2826	870	4061
880	12948	890	1640	900	17396
910	16946	920	2121	930	2458
940	5723	950	6180	960	7219
970	6202	980	5924	990	8236
1000	1355	1010	6202	1020	5924
1030	1737	1040	4763	1050	617
1060	14240	1070	2750	1080	2648
1090	1355	1100	5471	1110	5786
1120	3397	1130	1846	1140	7326
1150	11257	1160	1012	1170	1498
1180	11265	1190	11969	1200	11445
1210	10787	1220	10479	1230	4042
1240	6237	1250	13481	1260	17467
1270	16927	1280	2121	1290	2458
1300	9012	1310	6184	1320	5844
1330	8530	1340	5988	1350	6359
1360	3284	1370	8114	1380	4199
1390	1355	1400	8542	1410	5988
1420	6359	1430	4244	1440	4337
1450	1355	1460	1559	1470	20198
1480	4699	1490	1892	1500	9433
1510	6472	1520	6261		

Program II

```
20 ;TEXT COMPRESSOR PROGRAM
30 ;MACHINE CODE ROUTINE
40 ;by Stephen Williamson
50 ;
60          *=   1536
70          PLA
80          PLA
90          STA  COMPARE+2 ;Get hi-byte of
                            TEXT$
0100        PLA
0110        STA  COMPARE+1 ;Same for lo-byte
                            of text string
0120        PLA
0130        PLA
0140        STA  203       ;Store L1
0150        PLA
0160        PLA
0170        STA  204       ;Store L2
0180        PLA
0190        PLA
0200        STA  205       ;Store L3
0210        PLA
0220        STA  207       ;Store hi-byte
                            text length
0230        PLA
0240        STA  206       ;Store lo-byte
                            text length
0250        LDY  #0
0260        LDX  #0
0270 LOOP   STY  208
0280        LDA  203
0290        JSR  COMPARE
0300        INY
0310        LDA  204
0320        JSR  COMPARE
0330        INY
0340        LDA  205
0350        JSR  COMPARE
0360        LDA  209
0370        ADC  #0
0380        STA  209
0390        JMP  LOOP
0400 NEXT   LDY  208
0410        INY
0420        BEQ  ON
0430        JMP  LOOP
0440 ON     CPX  207
0450        BNE  ON1
0460        RTS
0470 ON1    INX
0480        LDY  #0
0490        LDA  COMPARE+2
0500        ADC  #1
0510        STA  COMPARE+2
0520        JMP  LOOP
0530        RTS
0540        NOP            ;No-OPeration
0550        NOP             commands
0560        NOP
0570        NOP
0580        NOP
0590        NOP
0600        NOP
0610        NOP
0620        NOP
0630        NOP
0640        NOP
0650        NOP
0660        NOP
0670        NOP
0680        NOP
0690        NOP
0700        NOP
0710        NOP
0720        NOP
0730        NOP
0740        NOP
0750        NOP
0760        NOP
0770        NOP
0780        NOP
0790        NOP
0800        NOP
0810 COMPARE CMP 8787,Y    ;This address will
0820        BEQ  EXIT       change according
0830        PLA            ;to actual address
0840        PLA             of TEXT$
0850        JMP  NEXT
0860 EXIT   RTS
0870        .END
```

Operation OS

How your Atari handles the input and output of data

WE receive a number of letters every month asking for more information on the Atari's powerful input and output facilities. It would be impossible to answer such questions in the space allowed by the Mailbag pages, so this issue sees the first part of a major new tutorial series on I/O with the Atari.

For a start let's take a look at how the Operating System (OS) is set up for the input and output of data. We will cover using the IO system from Basic and machine code in a later issue.

The first thing you must realise is that the structure of the Atari 8 bit OS bears more resemblance to a mini computer than to its direct rivals such as the Commodore 64 and the Spectrum.

The operation of most home micros revolves around Basic, which in turn calls up a set of small machine code routines when other functions – such as I/O, sound or graphics – are required.

The Atari, on the other hand, has a constantly running operating system which in turn runs the Basic language for you. This operating system may be called up via the Central Input/Output system – known as CIO.

CIO is a very powerful integral part of the Atari – all standard text, graphics and load/save data go through it. From Basic you normally access this system via its eight "channels" – numbered 0 to 7.

For example, OPEN #1,8,0,"C:" tells CIO that you wish to use channel number one for output to the cassette recorder, and CLOSE #2 tells it that you have now finished using channel two.

Each time you use a filespec such as "C:", "D:MYPROG.BAS" or "P:" you are telling the CIO system which device is to be used with that channel.

The first part specifies the device to be used while the rest is an optional

By ANDRÉ WILLEY

filename portion, mainly used by the disc system.

The normal devices available to CIO are:

- **P:** Printer
- **C:** Cassette recorder
- **E:** The screen text editor
- **S:** Screen display
- **K:** Keyboard
- **D:** Disc (if DOS is loaded)
- **R:** RS232 (if loaded)

It is worth noting at this stage that the last two devices are optional. Both the disc operating system and the RS232 handler are only set up by the operating system if those devices are present in your system.

In designing the OS, Atari decided – quite rightly – that cassette users would be a little unwilling to lose about 9k of program space to allow for a possible future disc drive.

It would be far better if the memory-eating machine code needed to support a disc system could be loaded into memory only if there was a drive attached. This is in fact what happens when you turn on your computer and disc drive. The CIO disc handler is probably better known to most of you as Dos.

All the device names are held in a table – called the Handler Address Table, or HATABS. Each three byte entry consists of the device identifier character – C, D, E, K and so on – followed by the two byte memory address of the handler itself.

Other devices can be added to the Handler Address Table very easily, and we'll be looking at this in more detail in a future issue.

So just how does CIO work? When you type your CSAVE or PRINT command, how does Basic pass the information to CIO? Perhaps the easiest way to understand what is happening is to look at one command and see how it functions.

Let's examine the very simple command LPRINT "HELLO". For those of you without a printer, all this does is print out the word HELLO. This command could also be written in a different way:

```
OPEN #7,8,0,"P:"
PRINT #7; "HELLO"
CLOSE #7
```

This is in fact the way that Basic handles the problem. First it opens a channel to the printer, then sends "HELLO" to that channel (and thus to the printer) and finally it closes the channel again.

To tell CIO which channel you wish to use there are eight blocks of memory – one for each channel – called Input/Output Control Blocks

Address	Label	Bytes	Description
IOCB + 0	ICHID	1	Index into HATABS
IOCB + 1	ICDNO	1	Device number (D1:, D2:...)
IOCB + 2	ICCOM	1	Command type (OPEN, CLOSE...)
IOCB + 3	ICSTA	1	Current status of device
IOCB + 4,5	ICBAL/H	2	Buffer or filespec address
IOCB + 6,7	ICPTL/H	2	Address of put-byte routine (-1)
IOCB + 8,9	ICBLL/H	2	Buffer data length sent/returned
IOCB + 10	ICAX1	1	Auxiliary byte 1
IOCB + 11	ICAX2	1	Auxiliary byte 2
IOCB + 12	ICAX3	1	Auxiliary byte 3
IOCB + 13	ICAX4	1	Auxiliary byte 4
IOCB + 14	ICAX5	1	Auxiliary byte 5
IOCB + 15	ICAX6	1	Auxiliary byte 6

Figure I: IOCB structure

(IOCB).

Whenever you wish to send a command to CIO you use one of these blocks – except block zero which is normally used by the operating system to handle the keyboard and display.

Each IOCB is sixteen bytes long and next issue we'll look at exactly how they work. For now though, you may be interested in taking a look at their contents. (See Figure I.)

IOCB zero is at address $340 (832 decimal), IOCB one is at $350 (848) and so on. Use PEEK to see what values are stored in each IOCB, but make sure you don't POKE them just yet.

You may also want to take a took at HATABS, which is located just before the IOCBs at $31A (794) and takes up 38 bytes. (See Figure II.)

HATABS	+ 0	P	$E430
HATABS	+ 3	C	$E440
HATABS	+ 6	E	$E400
HATABS	+ 9	S	$E410
HATABS	+ 12	K	$E420
HATABS	+ 15	D	$07CB
HATABS	+ 18	R	$226D
HATABS	+ 21	–	$0000
HATABS	+ 24	–	$0000
HATABS	+ 27	–	$0000
HATABS	+ 30	–	$0000
HATABS	+ 33	–	$0000

Figure II: The handler address table ($31A). This assumes Dos 2.5 and 850 RS232 handler present. Unused entries are filled with zeroes.

To open channel seven, Basic sets up various bytes within IOCB seven — at $3B0 (944). One byte (ICCOM) will tell CIO that you want to do an open command rather than a close, get characters or any other command.

Another byte (ICAX1) tells CIO whether to use input or output and another two (ICBAL/H) tell it where to find the filespec – in this case a simple "P:".

Once the ICOB has been set up, Basic simply does a machine code call to the CIO entry point – known as the Central Input/Output Vector, or CIOV. This is located at $E456 (58454).

Upon being called, CIO looks up the name P in the Handler Table. Once it has found the address, CIO can re-route any data going into channel seven to the printer handler machine code.

Thus when the command to put characters – the operating system version of PRINT – is sent, the characters will all be sent to the printer.

The final command is close, which needs just one command byte to be set. In the case of the P: device, close will also add a Carriage Return character if one has not already been sent. Most devices don't do this, but rely on you sending a Return character with your data.

That's all for this month. If you have a printer try out the following one line routine and see if you can work out what is happening:

```
OPEN #7,8,0,"P": POKE 838,
PEEK(950): POKE 839,PEEK(951)
```

● *Next issue we'll be taking a more detailed look at how the IOCBs work and how you can program them for yourself.*





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CIRCLES from D. HUNT

USING different methods to plot circles has held a fascination for man since the beginning of mathematics. This five-liner demonstrates the Bresenham's circle algorithm.

It works in modes 3 to 8, but will produce ellipses if used in modes 9 to 11.

Line Breakdown

10 Sets up the variables.
20 Plots some points on the circumference.
30 Calculates special value for variable *PI* and then branches to line 50.
40 Calculates value for *PI*.
50 Increments *X1* and checks to see if the circle is complete.

```
0 GRAPHICS 8:X=100:Y=80:R=60:COLOR 1:G
OSUB 10:END :REM *** SET UP AND GO ***
10 XI=0:PI=3-2*R:REM *** START OF 5-LI
NER ***
20 PLOT X+XI,Y-R:PLOT X+XI,Y+R:PLOT X-
XI,Y-R:PLOT X-XI,Y+R:PLOT X+R,Y+XI:PLO
T X-R,Y+XI:PLOT X+R,Y-XI:PLOT X-R,Y-XI
30 IF PI>=0 THEN PI=PI+4*(XI-R)+10:R=R
-1:GOTO 50
40 PI=PI+4*XI+6
50 XI=XI+1:IF XI<=R THEN GOTO 20
60 RETURN :REM *** END OF 5-LINER ***
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
0	13620	10	7532	20	22789
30	8093	40	2299	50	5799
60	6318				

COLOUR CHANGER from J. ELLIS

MANY of you will have found that the Atari's default colours – blue on blue – do not provide enough contrast for long periods of programming.

This program uses a vertical blank interrupt routine to change the colour values in locations 709 to 710 fifty times a second, thus appearing continuous.

The colour values can be set to individual tastes by substituting the 0 and 10 in line 50 with the required values.

In addition this program displays the disc menu and then gives the option to enter Basic or Dos.

Line Breakdown

10 POKEs in the routine.
20 Displays the disc menu.
30 Asks the user whether he wishes to enter Basic or Dos.
40 Waits for a key press.
50 The data for the routine.

```
10 ? CHR$(125):RESTORE 50:POKE 82,0:PO
KE 752,1:FOR J=1768 TO 1791:READ A:POK
E J,A:NEXT J:Z=USR(1768)
20 ? CHR$(125):DIM A$(20),YN$(2):OPEN
#1,6,0,"D:*.*":TRAP 30:FOR I=1 TO 64:I
NPUT #1,A$:? A$;"    ";:NEXT I
30 POP :CLOSE #1:? :? :? :? "    Press
B for basic or D for DOS"
40 KEY=PEEK(764):ON KEY<>58 AND KEY<>2
1 GOTO 40:POKE 764,255:? CHR$(125):POK
E 752,0:IF KEY=58 THEN DOS
50 DATA 104,162,6,160,243,169,6,32,92,
228,96,169,0,141,197,2,169,10,141,198,
2,76,95,228
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	17637	20	17075	30	12899
40	18214	50	12863		

LINES

HAVE you ever looked longingly at the lines between each line of text on the BBC Micro? Well, with this handy five-liner you can achieve the same result on your Atari, helping you to read listings and large amounts of text easily.

The program modifies the display list using a machine code routine to achieve its results.

Line Breakdown

10 Read in the data.
20-40 The data for the program.
50 Reroutes the display list.

```
10 READ D:IF D<999 THEN POKE 1536+X,D:
X=X+1:GOTO 10
20 DATA 16,16,80,66,255,255,0,2,0,2,0,
2,0,2,0,2,0,2,0,2,0,2,0,2
30 DATA 0,2,0,2,0,2,0,2,0,2,0,2,0,2,0,
2,0,2,0,2,0,2,0,2,0,2,65,0,6
40 DATA 169,0,141,48,2,169,6,141,49,2,
96,999
50 POKE 1536+4,PEEK(88):POKE 1536+5,PE
EK(89):POKE 560,0:POKE 561,6:POKE 9,25
5:POKE 2,55:POKE 3,6
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	9174	20	9566	30	9231
40	6433	50	16650		

LINE DELETER from G.A. Wright

IF you load and run this five-liner before a program editing session, it will add an extra command which you will find very useful.

When called by using:

G=USR(1536,FROM,TO)

where FROM is the start of the block of lines to be deleted and TO is the end, the range of lines will be deleted from your program.

If either the start or end line number does not exist, a bell will be sounded.

Line Deleter calls several of Basic's rom routines including – Contract ($A8FD), Warmstart and Bell.

Line Breakdown

10 POKES in the data for the routine.
20-50 The data for the routine.

```
10 FOR J=1536 TO 1620:READ A:POKE J,A:
NEXT J
20 DATA 104,104,133,161,104,133,160,32
,162,169,176,67,165,138,133,203,165,13
9,133,204,104,133
30 DATA 161,104,133,160,32,170,169,176
,48,32,221,169,32,208,169,133,206,165,
138,133,205,56
40 DATA 229,203,176,2,230,204,133,203,
56,165,139,229,204,133,204,144,18,208,
4,165,203,240
50 DATA 12,162,138,164,203,165,204,32,
253,168,76,77,160,32,10,249,76,77,160
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	7530	20	13649	30	13165
40	12914	50	10924		

Save yourself a lot of hassle

COULD you tell me where I can obtain the original Atari Joysticks (Model CX40), or failing that, if I can buy the connecting leads on their own?

My reason for asking is that both of my trusty Atari sticks have developed faults in their leads. One has lost upward movement and the other movement to the left.

When I dismantled them I found that the nylon inserts were both damaged, so I bought two repair kits from Silica Shop. Unfortunately even after replacing both the inserts and the PCB's both sticks still had the same faults.

I eventually found that the White wire on one, and the Green wire on the other, appear to have failed.

The push-on connectors are OK, but as the leads are sealed units I am unable to open them to check the connections at the plug end without doing irrepairable damage.

If you are unable to help on that front, could you recommend any alternative joysticks? I did buy a Quickshot stick from the Microdeal stand at the Atari computer show in March for £4.95, but after being accustomed to the sensitivity of the Atari sticks it felt like using a shovel with a loose handle. I also missed the base mounted fire button.

I have been considering the Mach 1 joystick from Cheetah Marketing, but £14.95 is rather a lot of money to spend only to find that I have bought another shovel.

I do feel that as the Mach 1 uses micro-switches and had a fire button mounted in the base that it is probably my best bet, but I would be interested in any observations from any of your staff that may have tried one.

Finally, I wish to thank A.K. Bishop from Cheshunt, Herts for the invaluable tip about the small hole in the bottom of the 130XE. (June 1985 Atari User*)*

A short time ago I bought one from Silica shop. When I set it up the colours were so poor as to be almost non-existent.

Then I remembered the letter and was able to adjust the colour output successfully and save myself an awful lot of hassle. – **J.A. Olding, Frome, Somerset.**

● As you say, the micro-switch based joysticks are generally the most reliable, but if you wish to repair your old Atari sticks then you should be able to get the leads separately from any Atari Service Centre, or from Atari themselves.

Auto Run for cassettes

REGARDING Ian James' query on auto run for cassettes, if he types SAVE "C:" with the inverted commas as opposed to the normal CSAVE and then when he wants to run program types RUN "C:" instead of CLOAD as we normally do he will find the program will, as he puts it, autorun.

Of course as we all know this method of loading uses more tape. – **D.J. Leach, Cheltenham, Glos.**

● This method does indeed work, but in a future issue we'll being showing you how to make your Basic programs into Start-key loads, which is much faster.

Problems with editing

APPROACHING retirement age I am finding operating my 800XL with other than games a little confusing.

My problems are with editing. During entering a program from Atari User some lines from a previous program were entered.

I have tried deleting them according to the Atari manual – Watsons First Steps in Basic book – but when typing LIST, the extra lines are still there.

When typing LIST "C:" after loading a program should a list of that program appear on the screen or no list as it does with me?

With no list on the screen I have loaded Get It Right! and then ran it but all that happened was the program ran but no checksum was produced.

What am I doing wrong or can it be the computer?

I have typed PEEK(43234) the answer was 234 so I take it I have a Basic C. – **George A. Smith, Mold, Clwyd.**

● To delete a line from a program all you need to do is enter the relevant line number and press the Return key. This can be done as often as you like to delete a number of lines.

When you type LIST "C:" the program will be listed to the cassette rather than to the screen. This is so that when you run Get It Right! it can read the information back from the tape.

Don't forget to rewind the LISTed tape and press the Play key before you run Get It Right!

Beyond the manual

HOW can I draw pictures on my screen and then record them on tape for future reference?

Are there any leaflets over and above those supplied with the 800XL that explain more clearly its various functions? – **Kelvin Andrews, Ipswich.**

★ ★ ★

COULD you please explain in-depth how to use the Input and Output commands XIO, OPEN and CLOSE on my 800XL?

Also could you tell me if there are any other commands in the 800XL's vocabulary which have not (besides the XIO command) been mentioned in the Atari manual? – **David Reid, Rugby.**

● This issue sees the start of our new series on Input/Output. We're covering the whole subject from a theoretical level and also from a practical level in future issues.

These articles should help you with some of your queries, but why not get a copy of a book called Your Atari Computer from Osborne/McGraw-Hill. This should help you out with any other commands which the manual does not cover fully.

Re-inking ribbons

I READ with great interest the article in the July issue of Atari User regarding the offer by Aladdink to re-ink printer ribbons.

It was such a pity that their address was not included in the article. – **D.A. Downie, Kemnay, Inverurie**

● Aladdink's address is: 9 Briton Ave, Manchester M9.

To buy or not to buy

I OWN an 800XL. I have tried PEEK(43234), the result was 96, so I have the Rev. B Basic.

I have recently contacted Silica Shop, who advised me that I don't need the Rev. C Basic unless I am pro-

→

ATARI USER Mailbag

WE welcome letters from readers – about your experiences using the Atari micros, about tips you would like to pass on to other users . . . and about what you would like to see in future issues.

The address to write to is:

Mailbag Editor
Atari User
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY

gramming in advanced machine code.

Also they said that I could have a Rev. C, but the PEEK could give me a Rev. B answer (96). This could apply to many other Atari users.

I have also read in previous answers to other users letters that you have advised them to buy a Rev. C.

What should I do? Should I buy a Rev. C or not? – **Simon Heyes, Lymm, Cheshire.**

● And we thought we'd heard the last of the Rev B/Rev C problems! If Silica told you that you'd only need Revision C Basic if you were working in machine code then they were sadly mistaken.

It doesn't make any difference at all which version you have if you work purely in machine code – only if you work a lot in Basic.

Also, once you plug in a known Revision C cartridge then you *will* get the correct PEEK value.

As we have said before, if you're doing a lot of programming you should definitely consider getting Revision C Basic.

No response to Ninja

I OWN a 130XE, which I haven't used for about a month.

The other day I bought Ninja from Mastertronic and now I can't get any response from these keys: C, E, D, P, 3, 0, :, left SHIFT, . and the Help key.

The machine still loads computer code games and uses the letters in the self test on all test modes.

Could you please tell me if the game has done this and if there is anything I could do to get the keys working again. – **Shaun Collorick, Gloucester.**

● This is a strange one – it sounds like a hardware fault in your computer, probably unrelated to the Ninja game, but that wouldn't explain how the self test keyboard check still works correctly. The best thing to do is drop your machine into your local dealer or service centre and see what they can do for you.

Getting it right!

I HAVE just bought your magazine for the first time. My first impressions are pretty good.

With the listings there is a checksum list. Being a first timer I do not have the program for the checksum. Could you please supply it? – **H. Broadhead, Doncaster.**

● Our checksum program, Get It Right!, last appeared in the August issue of *Atari User*. You can order this as a back issue using the form on Page 49.

Modem compatibility

I HAVE recently become interested in linking my 800XL to bulletin boards and databases via the telephone line.

A friend has offered me the loan of a Modular Technology Minimodem 3001 giving half or full duplex at a baud rate of 300/300.

Could you please tell me if this unit would be suitable for my use and if so what software would you recommend to complete the system, and how do I wire up the modem's V24 socket to my Atari? – **Ray Marsh, Stoke-on-Trent.**

● V24 is basically another term for the RS-232 300 Baud standard, and therefore the modem should be compatible with your Atari – assuming you have an RS232 interface unit. The best one to use is the Atari 850 which also provides a printer port, but you might find Miracle Technology's Datatari cable will work. But that does depend on whether the modem will accept the TTL-level signals provided by the Datatari cable rather than the more normal 12V signals of RS232.

As to software, many programs will work with the 850.

But if you want to use the Datatari you will also have to use Miracle's Multi-Viewterm software, which will also work with the 850.

Pound printing

REGARDING Phil Rae's letter in the September 1986 Atari User, *I am getting a little tired of people trying to tell me that there is a way of putting the £ sign on to paper via Atariwriter. Yes, I think we now are all aware of the possibility, but there are still problems.*

Usually when I use the £ sign I want to put a figure directly after it, say £10. Sorry, but it can't be done.

When Atari wrote the Atariwriter program they forgot that in some circumstances you may want to put a figure right after a control code.

The result is that in the example above Atariwriter sees either Esc 81 or Esc 810. The second example would force an error, the first send the wrong control code, neither of which would have the desired effect.

The best that can be done is £ 10 – note the space. This same fault applies if you want to put a figure directly after any escape code, no matter which printer you configure for.

Hopefully, one day we will be able to get a software patch to cure this. My way around it is to use a different, equally cheap, word processor altogether.

And I think that closes the debate. Or does it? – **Rob Anthony, Richmond, Surrey.**

● There is, of course, a way around this problem. Unfortunately it can be a little long-winded. As you say, each time you use the Control+O sequence to generate a pound-sign you would normally expect to follow it with a number. In order to do this you can always specify the number as a set of Ascii codes too – for example: Control+O 48 would be a zero, Control+O 49 would be a one, and so on. The problem is, of course, that this is all very time consuming and rather defeats the object of a word processor . . .

Print Shop problems

I OWN an Atari 130XE computer system with an XMM801 printer. I am extremely pleased with the system as well as with the

information and support I get from Atari User.

However, like all Atari users I have had a few problems.

Why can't I get Print Shop to work on my printer? I am told the XMM801 is Epson-compatible, and all the other graphics programs I have used work very well.

When I use my Atariwriter Plus although I enter the control code for double strike print it will only double strike on the first page.

I have tried using page ejects and entering the codes for each page, but this is awkward and not always reliable. How can I get around this? – **Charles T. Miller, RAF Alconbury, Huntingdon.**

● The XMM801 is not fully Epson compatible, and this might be causing your problems. Some codes may not work quite as they should, and Print Shop obviously uses some of them.

It would be worth checking with both Atari and the dealer you got Print Shop from.

As for double strike, have you thought of putting the start double strike command as the first part of a page header line? This might well cure your problem.

Golden oldies

EVERYONE knows that software houses show little feeling for the Atari 8 bit machines, so the software that's written at the moment isn't matching up to the quality on other machines.

Please would you review some of the older but brilliant games, like Crystal Castles, Flight Sim II, Choplifter, Jumpman, Rainbow Walker, Necromancer, Tennis, B.C.'s quest for tyres.

I am sure that a few pages reviewing older games would go down very well with many other readers and would help to better a very good magazine. – **Gary Couling.**

● Anyone interested in the wealth of older games for their 8 bit Ataris should read the Games Old and New article in last month's *Atari User.*

Cartridge loading

I HAVE just got a new game, Pharoahs Curse, for my 800XL, but every time I try to load it a message comes on the screen telling me to remove cartridge.

There is nothing in the cartridge slot and I have tried loading it in several different ways. Can you please suggest what may be wrong, – **M.A. Welsford.**

● The problem may be that you have not actually got a new game, but a rather old one.

Pharoah's Curse was released long before the XL or XE machines came on to the market, and as such may respond incorrectly to the newer cartridge select system.

Don't forget to use the Start and Option keys rather than just Start when you switch on, but if you still get the problem you might consider investing in a translator/fix disc which will allow you to run games that were originally written for the old 400 and 800 machines.

Saving programs

CAN you please tell me how to save a program to disc on my 800XL. – **William Swan, Glasgow.**

● Firstly, you must remember to have your disc drive turned on and your DOS disc inserted before you boot up the system.

Then, once you have typed in your program all you need to do is to put in a newly formatted disc (see your DOS manual for information on how to do this) and type SAVE "D:NAME.BAS".

You may call your program by any name up to eight characters rather than NAME, of course.

To load it back again later you use LOAD "D:NAME.BAS".

Digitising signals

IS there a way of digitising a signal from a video camera or video player? – **A. Hillam, Marshapel, Lincs.**

● For more information on this subject you should read the ComputerEyes review in the November issue of *Atari User.*

Reverse video

HAVING successfully used my Atari User *Get It Right! tapes a few times, I decided to make a tape of the modified program listed in the August issue of* Atari User, *and ran into trouble with lines 4360, 4470 and 4260.*

I was able to print ◥ in Normal Video by use of the Escape, Shift and Clear keys of my 800XL immediately before use of the Reverse Video key, but no way was I able to print ◥ in reverse video. It appeared in normal video.

Is my 800XL at fault or is there a special procedure to do this? I note that this is in reverse video on the tape I bought. – **H.F. Martin, Halstead, Essex.**

● The character you want is not actually generated by the Clear key, but can be obtained by using Control+2. To obtain the symbol, press the Escape key, then type Control and 2 at the same time.

Arcade smashes

I HAVE just bought an Atari 800XL and when I got home I went to the paper shop and bought my first Atari User.

On reading your review on Atari Smash Hits 5, I promptly went out and bought it.

Well what can I say. Elektraglide is fantastic. After owning a Spectrum and a Vic20 I didn't know a computer game could be exactly like an arcade game. Thanks. – **Jim Leeson, Leeds.**

Recorders and TrakBalls

COULD you tell me if versions of the arcade games Crystal Castles and Choplifter are available for the Atari range of computers on cassette and who are they made by?

What is the difference between the XC11 and the XC12 data recorders?

One final thing, are there any fire buttons on the Atari TrakBall, as for most games one is needed and it is

→

European connection

I WISH to correspond with an Atari friend to exchange ideas and to learn English. – **L'hermite Olivier, 2 rue de la Liberté, 51370 St Blice-Caucells, France.**

★ ★ ★

WE own an Atari 130XE with a 1050 disc drive and an Atari 1040 STF with both monochrome and colour monitor and would like to correspond with Atari users anywhere in Europe. – **Vasilis Psomadakis, Aris Karamitsos, Achiropiitou 8, GR-54635, Thessaloniki, Greece.**

★ ★ ★

I AM looking for other Atari users anywhere in the world to swap hints and ideas. – **Sleuwaegen Johan, 40, 2670 Puurs, Belgium.**

supposed to be compatible with any joystick controlled game or function. – **Paul Myers, Runcorn, Cheshire.**

● Crystal Castles is not out for the Atari as yet, but we think there might be some plans to market one.

As for Choplifter, the game seems to have come full circle. It was originally out on home computers – the Atari and the Apple – from Broderbund and has since been transferred to the arcades!

Thus your best bet would be to check with Ariolasoft and US Gold, both of whom have certain rights to Broderbund software, and find out what the current availability is.

You could also try ringing round the larger mail order dealers to see if they have any old stock left.

The XC12 supersedes the XC11 recorder, but doesn't seem to be quite as good. The XC12 is based on the Phonemark recorder, and if you can get hold of the older XC11 you will probably be better off. That said, the XC12 shouldn't give you any real problems.

As to your final question – yes, the trackball does indeed have a fire button – in fact it has two for greater convenience.

You can use a TrakBall in place of a joystick just so long as you remember to set it in its special joystick mode.

Baud speeds

IN your reply to Richard Martin's letter which appeared in September's Atari User *you stated that there was no way to increase the baud rate used by Atari tapes without hardware modifications.*

Theoretically though, the cassette handler in the Atari operating system can automatically adjust the baud rate when reading data from the tape deck to speeds of up to 1400 baud.

It reads two speed bytes in the header at the start of each 128 byte block, and by timing how long it takes to do this, knows the baud rate to use. It will also read tapes as low as 300 baud.

Data can be written at such speeds by using software which directly controls the serial port.

Although this is a complex business, it can be done and I have seen in past issues of this and other magazines advertisements for such programs, some claiming to be able to use up to 1200 baud.

I do not know why this is not used widely by software manufacturers, although it is most likely because using higher speeds will be less reliable, especially when tapes are being read by recorders other than that which recorded the data.

The only software that I can remember ever having seen that used different baud rates was Dimension-X from Synapse.

With one of the original copies – I don't know if they have changed this now – the program loaded in two parts. The first, short one loading at a slightly faster rate, and the longer one at a slower speed, while music played continuously. – **Brian D. McIndoe, Cheltenham, Goucestershire.**

● What you say is quite correct, as far as it goes. However, you will find that as soon as you exceed

YOUR HINTS AND TIPS

HERE are some tips for various Atari games.

Beer Belly Burt's Brew Biz: When you arrive at the swimming pool in the production area, swim at the bottom as the fish cannot get you there.

Dropzone: To stop the androids killing your men while they are in the base, only put seven men in and carry the last around with you.

Ghost Chaser: To obtain extra lives type Frank. The password is Fanda. (Typical of Frank Cohen!)

Rescue on Fractalus: Only open the airlock when the pilot bangs on the door, otherwise you may find an alien could get into the ship. If a pilot has a green helmet it means that he is an alien, so you must turn the systems on to eliminate it.

War Hawk: Occasionally a spaceship will appear on the opposite side to your craft. Do not go near it, hit it or fly over it as if you leave it alone nothing will attack you throughout that level. Pressing Start and Option change the direction of the stars on the title page.

Zorro: To get to Garcia's evil jail you must go down the steps in the graveyard and then collect the bags of money going out of the nearest exit from each bag.

When you come to a door with the horseshoe, boot and glass of water flashing on it go through and up the ladder and there you are. If one or more are not flashing then you must collect that item. – **R.A. Lane, Derby.**

PASSWORDS

HERE are some passwords for Atari games:

Whirlinurds:
IAMTHEHUNGRYDUDE
Miner 2049'er:
2137826861
Phoaroahs Curse:
SYNISTOPS
Diamond Mine:
HID/BIG/DIA

– **Paul Simpson, Swansea.**

SYNTHESISER

*A QUICK tip for anyone wishing to use the synthesier program (*Atari User *April, 1986) more seriously.*

There are music books out for the Rolf Harris Stylophone and, as the stylophone has the same number of keys, these are ideal for the program. – **Lee Newsum, Derby.**

USEFUL POKE

WITH reference to the letter from Ian Noble in the September 1986 Atari User, *I have a POKE that may be of interest to him.*

If you POKE 54018 with 52 you will be able to play Dire Straits or whatever through the tape unit while typing in listings.

Poking the same address with 60 disables this facility.

One hint: If Ian or anyone else is going to try the Two Track Trick, don't stop in mid-tape when recording the music track if you've already saved your program as this is liable to corrupt the data blocks.

We are also able to stop all the whistling noises during loading without having to turn the TV volume down. Poke 65,0 for silence or 3 to resume normality.

Finally, can anyone tell me the secret of getting through the third level of Super Zaxxon?

Keep up the good work on the magazine, but let's have some more on advanced (machine code?) sound techniques please. – **Clive Alexander, Cardiff.**

CHEAT MODE

AFTER reading James Lloyd's tips on Bounty Bob in the October Atari User *I was surprised to find that he had omitted the cheat mode.*

To enter this mode, set special code to 61800, then hold down the F key and press option.

Although it appears that nothing has happened, on starting the game you will be able to use the following keys:

F – float mode on/off.
Q – advance one level.
A – decrease one level.

The code for ultimate feasts on Whirlinurds is: IAMTHEHUNGRYDUDE

Can anybody help me to solve the final obstacle in Hacker, when you run out of time just before you are

about 900 baud the load reliability drops off alarmingly.

This is not so noticeable when playing a tape recorded on your own machine, but if commercial software were to be recorded at 900 baud it would only load on about 75 per cent of recorders.

Some companies do use this form of loader, but as it offers no more than a 50 per cent increase in speed it can hardly be called a turbo loader.

These typically offer increases of between 5 and 10 times the normal cassette speed.

What we said before still stands – the Atari tape system is simply not capable of working at turbo speeds without hardware modifications to the FSK decoder circuitry.

HELP!

HAS anyone else out there got Crusade in Europe? I really enjoy this game but have had the most amazing problem saving the longer scenarios so that I can come back to them later.

I assign the program a 1 to 8 character name, and the Atari saves the current situation to disc. However I cannot get the disc to reload the saved game, all I can get is error 21.

Twice I've written to Micro Prose at Albany House, but they've not replied and so, though I enjoy the simulation, I can't tackle the larger scenario as I haven't 10 hours to spare to do it all in one go. – **Patrick Smyth, Portsmouth.**

★ ★ ★

I RECENTLY bought smash hits Vol. 5 for my Atari 800XL and I am having problems with the game Mediator.

I can land my spacecraft and collect all six bones. After collecting bone No. 6 my horse appears but now what do I do? Can anyone help? **C.P. Salter, Barry, South Glamorgan.**

★ ★ ★

I HAVE a problem with Mastertronics superb Ninja. Where do I go after Akuma's chamber? – **John Baxter, Dundonald, Ayrshire.**

★ ★ ★

I AM seeking help on The Last V8 by Mastertronic. Please could anyone tell me how to get back to base on the first sheet as I am finding it impossible in the time given. – **R. Jones, Margate, Kent.**

★ ★ ★

I FIND that when you crash Kikstart you don't start off again where you crashed but carry on for a while on the grass or water.

Could you or anyone give me some help in making the game more interesting? – **D. Bevan, Cwmbran, Gwent.**

about to complete the game? – **Steven Hurst, Bolton, Lancs.**

SPELLBOUND

COULD you tell me how to get past the tower and where the javelin is in Spellbound.

Enough of my problems. Here are hints for a couple of games.

Kikstart: While the bike is revving up hold the joystick to the left and you will start off at top speed.

Spy vs Spy II: When fighting keep on the right hand side and you'll always win. – **Philip Snape, Runcorn, Cheshire.**

ACTION BIKER

I FIND my Atari 800XL computer very rewarding due to the excellent games now available.

My friends and I have spent many hours trying to complete Mastertronic's Action Biker. We have finally completed it and have made notes on the objects and where they are found.

Incidentally we were quite disappointed to find after all our hard efforts that the shots of the game shown on the inlay card were not from the Atari but from the CBM64. We had hoped there was a city after the race.

Action Biker objects and places:

The tree near the lake – crash helmet.
Back of petrol station – riding leathers.
At the back of the fairground – highway code.
Building yard – gears.
In fences by fairground – gloves.
Next to drag track – headlamp.
Next to drag track in fences – petrol gauge.
By lake at the end of the drag track – fuel tank.
Next to drag track – tool box.
Back of fairground – mudguards.
In fences next to drag track – sunglasses.
Inside fairground – fairing.
Next to drag track – can of pop.
Building yard – visor.
In fences near drag track – exhaust pipe.
In the ramps – power brakes.
Back of petrol station – speedometer.
Building yard – brake lamp.
Back of fairground – oil can.
Building yard ramps – turbo charger.
The ramps – cooling fins.
Back of petrol station – indicators.
Top of fairground – mirror.
Next to drag track – two tone horn.
Building yard ramps – reflectors.
Next to drag track – road maps.
Back of petrol station – electric starter.
On top of the fairground – lunch box.
Next to drag track – CB radio.
Building site – go faster stripes.
Next to petrol station – water skis.
Next to ramps – fire extinguisher.
In lake – fog lamps.
Building yard ramps – stop watch.
Back of fairground – moto cross tyres.
Building yard ramps – personal hi-fi.
Lake – electronic ignition.
Pond – rev counter.
The ramps – windshield.
Lake – ticket to ride the race.

You only have one minute to get to the drag track for the start of the race. – **Michael Smith, Oxford.**

HACKER

Are you having trouble hacking your way through Hacker? Here are some tips.

First, the logon is AUSTRALIA.

The security checks are:

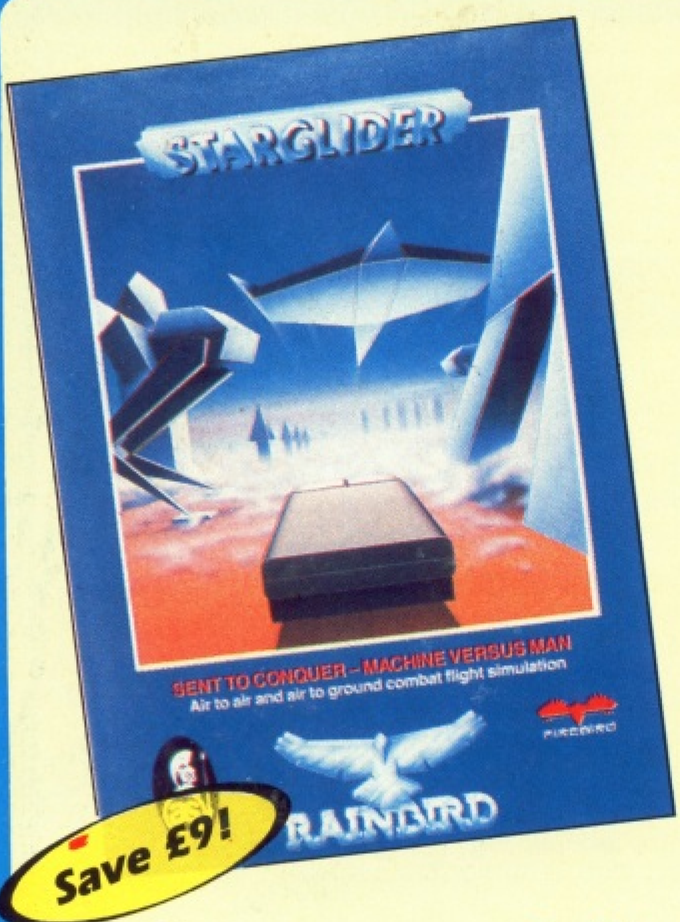
1. *MAGMA,LTD.*
2. *AX-0310479.*
3. *HYDRAULIC.*
4. *AUSTRALIA.*

Here is the route I took and what I offered: France-money, Egypt-chronograph, Greece-statue of Tut, China-emerald scarab, New York-deeds to Swiss chalet, Hong-Kong stocks and bonds, Russia-cultured pearls, England-Jade carving or 35mm camera, Brazil-jade carving or 35mm camera, San Francisco-Beatles' album.

Also password for Ollies Follies are: Frank, fanda, norbi and zoom. – **Mark Ashton, Hagley, West Midlands.**

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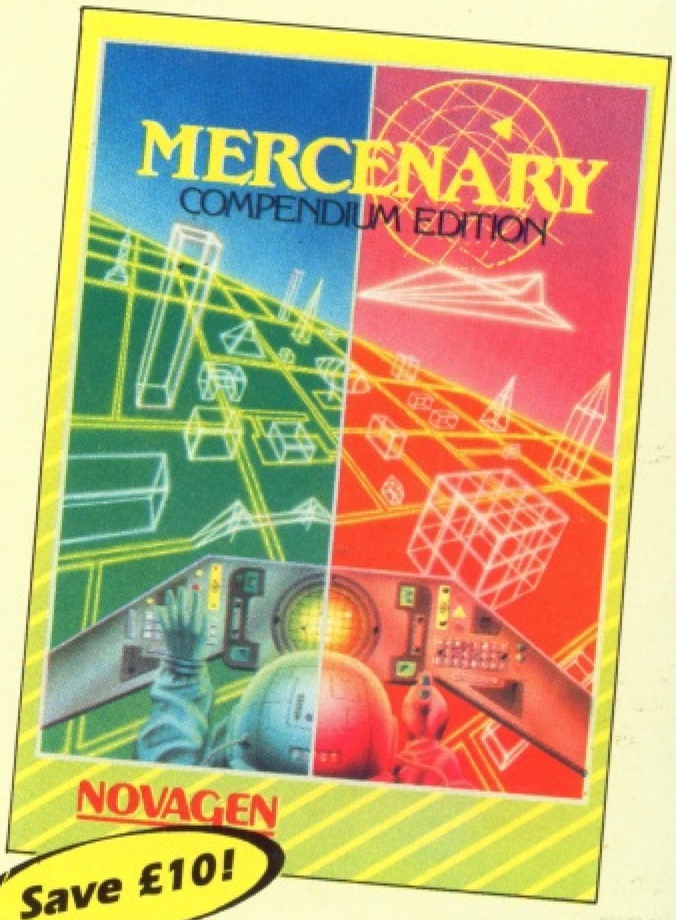
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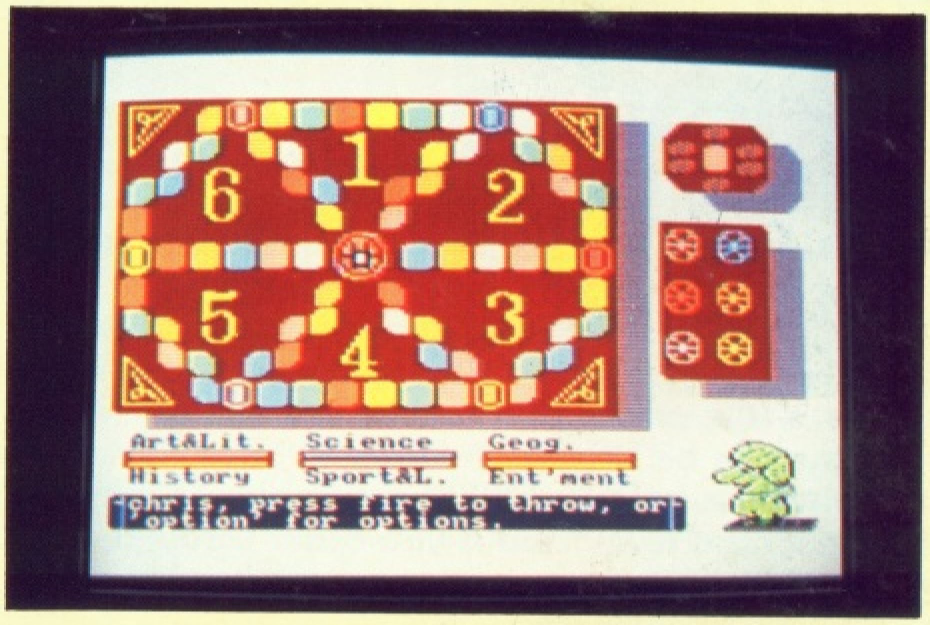
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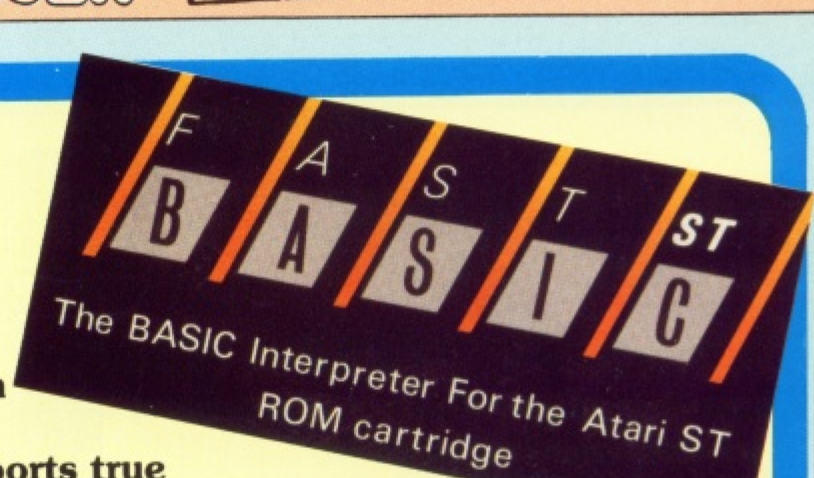


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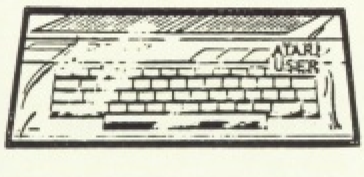
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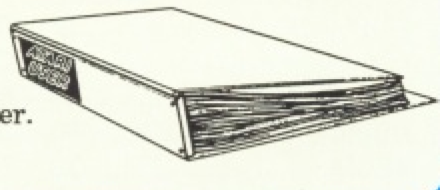


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